1. General Requirements

All components have to be mounted according to the drawing: GBA26800MX The bare board is specified as: GBA610ADB

2. Revision History

Version	Date	Revised by	Description
1.0	2010-APR-13	A. Tutat	Initial Version
1.1	2010-MAY-28	A. Tutat	some limits adapted, CA47A-000528
1.2	2010-DEC-28	A. Tutat	test cases PTC not required, CA47A-000528
1.3	2011-JAN-06	A. Tutat	SMPS load resistors (2k), CA47A-000528
1.4	2013-JAN-18	A. Tutat	version MX3, MX4 inserted, CN376610
1.5	2014-DEC-15	A. Tutat	Power Supply: IGBT Gate Driver max. voltage changed from 29V to 30V and colour code legend inserted, CN628653
1.6	2015-JUN-12	A. Tutat	SMPS SWITCHING FREQUENCY tolerance increased, CN685046

3. Code Requirements

The board has been laid out according to the requirements in EN81, VDE110-1 (Transient Voltage 4kV; Inhomogeneous Field, Pollution Degree 2 and Safety relevant areas to other areas: Pollution Degree 3; Clearance Distance: Table2; Creepage Distance: Table

Date	Changes	Name	Took Downingmant for		GBA2680	OMY TD
2015-JUN-12	SMPS SWITCHING FREQUENCY tolerance increased	A. Tutat	Test Requirement for PBX BIDI		GBAZ000	JUIVIA_TK
			ו טאב	1	12 SHEETS	- SHEET 1
			OTIS	RESP	2010-APR-13	A. Tutat
			Elevator Company	CHK	2010-APR-13	M. Dehmlow
			Enigneering Center Berlin	AUT	2010-APR-13	CA47A-000528

4. Data logging Requirements for the purpose of statistical analysis.

All measurement results should be written together with the PCB serial number and production-date into a file.

The time-interval to produce a back-up of the file should be determined by the factory. Also must be determined how many records are captured per file.

Construction of the file:

- 1. PCB serial number
- 2. production-date
- 3. all measurement results, The variable-names should consist of a combination of Symbol-Name and Parameter-Name.) Visual separation through special character, for example: ********************************.

5. Electrical Requirements

Unless otherwise noted MIN/MAX values are valid for temperatures between +0degC and +70degC. All typical values are calculated for an ambient temperature of Ta=25degC.

DC values have to be measured with an average reading meter. AC values have to be measured with a true-RMS meter. DC values are marked with the unit V or A, AC values are marked with Vrms or Arms.

The remark "Logic Level" (LL) relates to HCMOS standard: "High" = 3.5V ... 5.7V and "Low"=-0.7V ... 1.0V.

Date	Changes	Name	Test Deswinsment for		GBA26800MX TR
2015-JUN-12	SMPS SWITCHING FREQUENCY tolerance increased	A. Tutat	Test Requirement for PBX BIDI		GBA20000WA_1R
			ו מופיב ו	,	12 SHEETS - SHEET 2
			OTIS	RESP	2010-APR-13 A. Tutat
			Elevator Company	CHK	2010-APR-13 M. Dehmlow
			Enigneering Center Berlin	AUT	2010-APR-13 CA47A-000528

5.1. Power supply

If within the test cases no other supply voltages are indicated, the board has to be supplied with the following voltages:

24V_HL2 +24V / current limitable to max. 500mA at P5.46 (referenced to HL2)

HL2 at P5.44

24V_SE +24V / current limitable to max. 500mA at P1.1 (referenced to 24V_SE_RTN)

24V_SE_RTN at P1.2

24V_SW +24V / current limitable to max. 500mA at P4.1 (referenced to 24V_SW_RTN)

24V_SW_RTN at P4.2

24V_SENSE +24V / current limitable to max. 500mA at P5.50 (referenced to 24V_SENSE_RTN)

24V_SENSE_RTN at P5.48

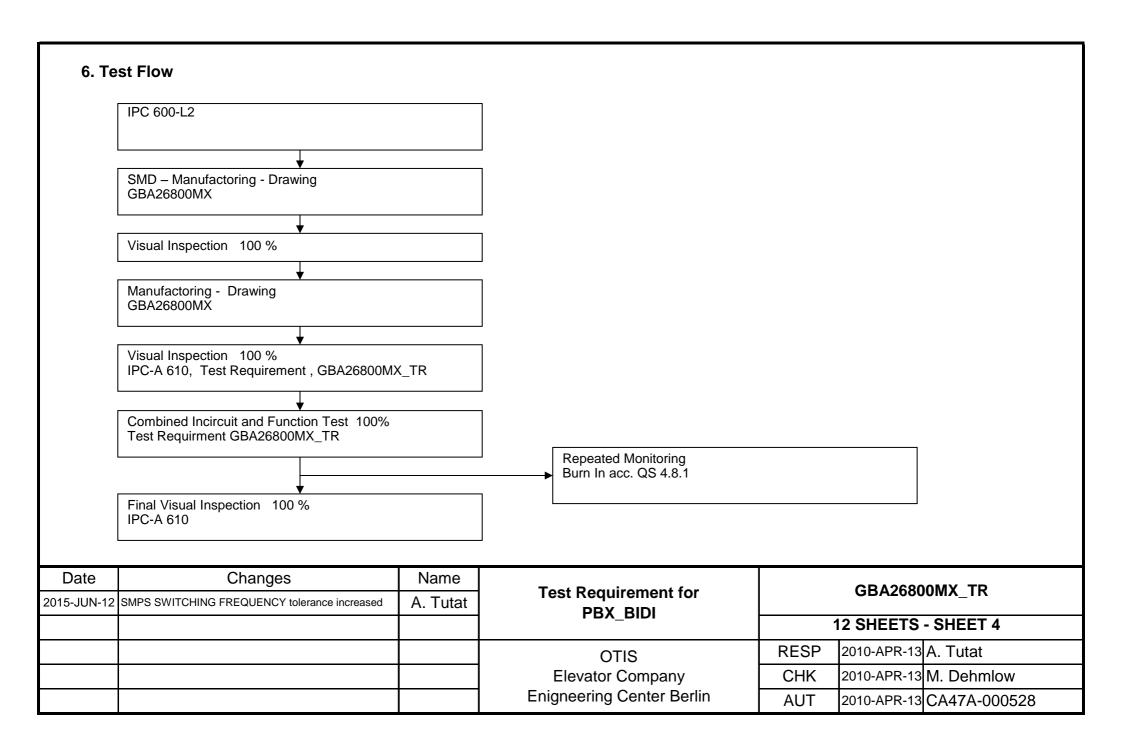
V+15V +15V / current limitable to max. 200mA at P3.40 (referenced to AGND)
V-15V -15V / current limitable to max. 200mA at P3.39 (referenced to AGND)

AGND at P3.38

VCC +5V / current limitable to max. 200mA at P3.13 (referenced to GND)

GND at P3.12

Date	Changes	Name	Took Dominoment for		GBA2680	OMY TD
2015-JUN-12	SMPS SWITCHING FREQUENCY tolerance increased	A. Tutat	Test Requirement for PBX BIDI		GBAZ000	OUNIA_TK
			ו טאב	•	12 SHEETS	- SHEET 3
			OTIS	RESP	2010-APR-13	A. Tutat
			Elevator Company	CHK	2010-APR-13	M. Dehmlow
			Enigneering Center Berlin	AUT	2010-APR-13	CA47A-000528



Test Requirement for PBX BIDI GBA26800M	ıy														
1. All measuring instruments must be calibrated!!!	i A														
As an additional document, the circuit diagram of the PCBA is rec	nuired														
3. All measuring points: reference points are described in kind of ne		est points or component designator													
PBX_BIDI alternatively assembled with CONVERTER- or INVER														Value range	
test cases only for PBX_BIDI, INVERTER -FUNCTIONALITY,								Sam	nlae						
test cases only for PBX_BIDI, CONVERTER-FUNCTIONALITY								Jaili	pies				Low	er Specification Li	mit
test cases not required for GBA26800MX1, MX2, MX3, MX4,													U pp	er Specification Li	mit
5. Highly Accelerated Life Test, test cases required for HALT, mark															
	colour	code legend				_	color	ır co	de le	gend			col	our code legei	nd
white: Testcases description, preparation		lightgreen: Measuring points, specified conditions, equations		white:	Indiv	idual r				90			lightyellow: Allow		
darkgreen: Hardware calibration parameter handling and		lightblue: transfer gain K3 (plausibility) check for HW calibration	_	wille.	maiv	iduai i	licast	area v	aiue				ilgilityellow. Allow	wed value range	
EEPROM parameter store addresses		darkgreen: Hardware calibration relevant measuring points, specified													
227 Nom parameter store addresses		conditions, equations, EEPROM parameter store addresses													
	Te	est cases				В	oard	Seri	al Nı	ımber			LSL	Typical	USL
Description						Ť	34.0							71.00	
Description	note	@ specified condition	unit												
Power Supply: IGBT Gate Driver PHASE R(U)	1	quiescent current consumption: 24V SW @ 24VDC											180.00	236.00	290.00
	2	quiescent current consumption: 24V_SE @ 24VDC	mA										180,00	236,00	360,00
SMPS characteristic		current: IGBT driver SMPS, SENSING SMPS											,		,
Switched Mode Power Supply		PWM_VCC_RU: 24V_DRIVER_RTN	V										10,00	11,00	13,00
		I_SENSE_RU: 24V_DRIVER_RTN											0,10	0,60	0,90
Power Fail Detection		SWITCHING ON-DUTY-CYCLE w/o any additional load	%										5.00	20.00	30.00
		SWITCHING FREQUENCY											85,00	170,00	260,00
		PWM CONTROLLER output pin or MOSFET DRAIN	kHz												
preparation:		GATE_SENSE_RU : 24_DRIVER_RTN	KHZ												
Please add additional load resistors (2k) to:		DRAIN RII · 24 DRIVER RTN													
1.)	3	+27V_RU_P : +27V_RU_P_RTN											26,00	27,00	30,00
+27V_RU_P : +27V_RU_P_RTN	3	12.12.102.11.12.12.102.12.11.1											26,00	27,00	30,00
2.)		REF_3V9_RU_P: +27V_RU_P_RTN											6,50	7,00	7,50
+27V_RU_N : +27V_RU_N_RTN		REF_2V5_RU_P: +27V_RU_P_RTN											2,38	2,50	2,63
		PF_IGBT threshold voltage											2,00	2,40	3, 10
		Increase +27V_RU_P from 0V until output a transition occurs: HIGH to LOW													
		MX1: PF_IGBT_INV : GND													
		MX2: PF_IGBT_CONV : GND													
		preparation:													
		disconnect primary 24V_SW and 24V_SE supply,													
		add an adjustable supply only on +27V_RU_P referenced to +27V_RU_P_RTN	V												
		+27V_RO_P referenced to +27V_RO_P_RTIN	· ·												
		REF 3V9 RU N:+27V RU N RTN									_		6,50	7,00	7,50
		REF 2V5 RU N : +27V RU N RTN											2.38	2.50	2,63
		PF_IGBT threshold voltage			\neg								2.00	2,40	3,10
		Increase +27V_RU_N from 0V until output a transition occurs: HIGH to LOW											_,00	_, .0	0, . 0
		MX1: PF_IGBT_INV : GND													
		MX2: PF_IGBT_CONV : GND													
		preparation:													
		disconnect primary 24V_SW and 24V_SE supply,													
		add an adjustable supply only on				J									
		add an adjustable supply only on +27V_RU_N referenced to +27V_RU_N_RTN													

Test Bequirement for BBV BIDLGBA36900M	AV.																
Test Requirement for PBX_BIDI GBA26800M	IX																
All measuring instruments must be calibrated!!!																	
2. As an additional document, the circuit diagram of the PCBA is re																	
3. All measuring points: reference points are described in kind of n			ponent designator.													Value range	
PBX_BIDI alternatively assembled with CONVERTER- or INVER	TER-FUNC	CTIONALITY														value range	
test cases only for PBX_BIDI, INVERTER-FUNCTIONALITY,	GBA2680	00MX1, MX3, ma	arked with note: 1						Sam	ples							
test cases only for PBX_BIDI, CONVERTER-FUNCTIONALIT	Y. GBA268	00 MX2 . MX4 . ma	arked with note: 2												Low	er Specification Li	mit
test cases not required for GBA26800MX1, MX2, MX3, MX4															U pp	er Specification Li	mit
5. Highly Accelerated Life Test, test cases required for HALT, mark																	
o. Figury Procedurated Elife Feet, took sales required for FireEr, main	tod With Hot	.0. 0															
					<u> </u>									_			
	<u>co</u> lour	code legend						colou	ır cod	de leç	jend				col	our code legei	nd
white: Testcases description, preparation		lightgreen: Me	asuring points, specified conditions, equations		white	e: Indi	vidual	meası	ired va	alue				lig	ightyellow: Allov	ved value range	
darkgreen: Hardware calibration parameter handling and		lightblue: trans	sfer gain K3 (plausibility) check for HW calibration												• •	•	
EEPROM parameter store addresses			rdware calibration relevant measuring points, specified	1													
			uations, EEPROM parameter store addresses														
	Te	est cases	dations, EE, Nom parameter store addresses				E	Board	Seri	al Nu	mber				LSL	Typical	USL
Description			measuring point : reference point						Ī			T	T				
Description	note		@ specified condition	unit													
	ב ב		@ specified condition														
Power Supply: IGBT Gate Driver PHASE S(V)		PWM VCC SV	: 24V_DRIVER_RTN												10.00	11.00	13,00
, , , , , , , , , , , , , , , , , , , ,			24V DRIVER RTN	V											0.10	0.60	0.90
SMPS characteristic			IV-DOTT-OTOLE W/O dity additional load												0,10	6100	50,00
Switched Mode Power Supply	l H	SWITCHING FI	REQUENCY	7.0	t —	†	†								85,00	170,00	260,00
Switched Mode Power Supply			DLLER output pin or MOSFET DRAIN												05,00	170,00	200,00
		CATE CENCE	_RU : 24_DRIVER_RTN	kHz													
Power Fail Detection																	
		DRAIN_RU: 24				_											
	3		27V_SV_P_RIN												26,00	27,00	30,00
preparation:	3		-27V_SV_N_RTN												26,00	27,00	30,00
Please add additional load resistors (2k) to:		REF_3V9_SV_	P:+27V_SV_P_RTN												6,50	7,00	7,50
1)		REF_2V5_SV_	P:+27V_SV_P_RTN												2,38	2,50	2,63
+27V_SV_P:+27V_SV_P_RTN		PF_IGBT thres	hold voltage							1					2.00	2.40	3.10
12/V_3V_F . 12/V_3V_F_KIN			SV_P from 0V until output a transition occurs: HIGH to LC	\\\											_,	-,	-,
2.)		MX1: PF_IGBT		**													
+27V_SV_N: +27V_SV_N_RTN		MX2: PF IGBT															
		IVIAZ. FF_IGBT	_CONV . GND														
		preparation:															
			ary 24V_SW and 24V_SE supply,														
			ole supply only on														
		+27V_SV_P ref	erenced to +27V_SV_P_RTN	V													
		REF_3V9_SV_	N:+27V_SV_N_RTN												6,50	7,00	7,50
		REF_2V5_SV_	N:+27V_SV_N_RTN												2,38	2,50	2,63
		PF_IGBT thres	hold voltage												2.00	2,40	3,10
			SV_N from 0V until output a transition occurs: HIGH to LC)\\\											_,	_,	-,
		MX1: PF_IGBT															
		MX2: PF_IGBT	_CONV . GND						l								
									l								
		preparation:							l								
			ary 24V_SW and 24V_SE supply,						l								
		add an adjustab	ole supply only on						l								
		+27V_SV_N ref	ferenced to +27V_SV_N_RTN		1	1	1										
					-	+-	+				_	+	+				

Test Requirement for PBX_BIDI GBA26800	MX													
1. All measuring instruments must be calibrated!!!	MIX													
As an additional document, the circuit diagram of the PCBA is	required.													
3. All measuring points : reference points are described in kind of		ints or component designator.											V-1	
4. PBX BIDI alternatively assembled with CONVERTER- or INVE													Value range	
test cases only for PBX_BIDI, INVERTER-FUNCTIONALITY	, GBA26800 MX	1, MX3, marked with note: 1					Sami	ples						
test cases only for PBX_BIDI, CONVERTER-FUNCTIONAL							Oum	pico				Low	er Specification Lir	nit
test cases not required for GBA26800MX1, MX2, MX3, MX												U pp	er Specification Lir	nit
5. Highly Accelerated Life Test, test cases required for HALT, ma														
	colour cod	e legend				colo	ur cod	de lec	end			col	our code legen	nd
white: Testcases description, preparation		tgreen: Measuring points, specified conditions, equations		white: In	dividua				0.1.0			lightyellow: Allov		
darkgreen: Hardware calibration parameter handling and		tblue: transfer gain K3 (plausibility) check for HW calibration					ou.ou ve					inginity cine with Amor	roa value ralige	
EEPROM parameter store addresses		kgreen: Hardware calibration relevant measuring points, specifie	•											
ELI Kom parameter store addresses		ditions, equations, EEPROM parameter store addresses	•											
	Test ca					Boar	d Seria	al Nu	mber			LSL	Typical	USL
Description		measuring point : reference point			T	Joan							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Description	note	@ specified condition	unit											
	드 드	@ specified condition					\vdash				-			
Power Supply: IGBT Gate Driver PHASE T(W)		M_VCC_TW: 24V_DRIVER_RTN										10,00	11,00	13,00
		ENSE_TW: 24V_DRIVER_RTN	0/									0,10	0,60	0,90
SMPS characteristic		TCHING ON-DLITY-CVCLE w/o any additional load	0/2			_					_	5.00	20.00	30.00
Switched Mode Power Supply		TCHING FREQUENCY										85,00	170,00	260,00
		M CONTROLLER output pin or MOSFET DRAIN	kHz											
Power Fail Detection		FE_SENSE_TW: 24_DRIVER_RTN												
		AIN TW: 24 DRIVER RTN												
		V_TW_P : +27V_TW_P_RTN									_	26,00	27,00	30,00
preparation:		V_TW_N : +27V_TW_N_RTN										26,00	27,00	30,00
Please add additional load resistors (2k) to:		3V9_TW_P : +27V_TW_P_RTN										6,50	7,00	7,50
1.)		F_2V5_TW_P : +27V_TW_P_RTN					-			_		2,38	2,50	2,63
+27V_TW_P : +27V_TW_P_RTN		IGBT threshold voltage										2,00	2,40	3, 10
2.)		ease +27V_TW_P from 0V until output a transition occurs: HIGH to LC)W											
+27V_TW_N : +27V_TW_N_RTN		: PF_IGBT_INV : GND												
	MX2	2: PF_IGBT_CONV : GND												
		paration:												
		onnect primary 24V_SW and 24V_SE supply,												
		an adjustable supply only on V_TW_P referenced to +27V_TW_P_RTN	V											
	+27	V_TVV_P referenced to +27V_TVV_P_RTN	v											
	REF	3V9 TW N:+27V TW N RTN				+				_		6,50	7,00	7,50
												2,38	2,50	2,63
		IGBT threshold voltage										2.00	2,40	3,10
		ease +27V_TW_N from 0V until output a transition occurs: HIGH to LO	w									2,00	2,	0,10
		: PF IGBT INV : GND												
		2: PF_IGBT_CONV : GND							1					
	141732								1					
	pre	paration:							1					
		onnect primary 24V_SW and 24V_SE supply,							1					
		an adjustable supply only on							1					
					1	1	1		- 1	1	1			
	+27	V_RU_N referenced to +27V_RU_N_RTN					1 1							

March Characteristic																
### Englished Secretary (1997) Proceedings Proceedings Procedure Proce	 All measuring instruments must be calibrated!!! As an additional document, the circuit diagram of the PCBA is require All measuring points: reference points are described in kind of netnar PBX_BIDI alternatively assembled with CONVERTER- or INVERTER test cases only for PBX_BIDI, INVERTER-FUNCTIONALITY, GI test cases only for PBX_BIDI, CONVERTER-FUNCTIONALITY, GI test cases not required for GBA26800MX1, MX2, MX3, MX4, mar 	mes, te I-FUNC BA2680 BA2680 rked wit	TIONALITY 000MX1, MX3, marked with note: 1 00MX2, MX4, marked with note: 2 th note: 4					Sam	ples					Low	er Specification Lir	
### Distance Properties Pro	CC	olour	code legend				colo	ur co	de le	gend				col	our code leger	nd
Power Burgely, EMISMO	white: Testcases description, preparation darkgreen: Hardware calibration parameter handling and		lightgreen: Measuring points, specified conditions, equations lightblue: transfer gain K3 (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified conditions, equations		white: In		l meas	ured v	alue					lightyellow: Allov	ved value range	
Perer Supply SENSING SMP3 characterists And A	Description			T			Board	Seri	iai Nu	ımber	<u> </u>			LSL	Typical	USL
### Supply PTC Temperature Measurement ### Supply PTC	2000, p. 100	not not	@ specified condition	unit												
### CC_PMA_CONFROLER: 329 JBMS_SERVE_ETY ### CC_PMA_CONFROLER: 329 JBMS	Power Supply: SENSING	1		mA										20,00	100,00	200,00
Private Control Care plans and September 1 (1) 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SMPS characteristic		VCC_PWM_CONTROLLER : 24V_SMPS_SENSE_RTN	V												15,00
SMPS_SENSE_CATE_2AY_SEPS_SENSE_ETN 70	Switched Mode Power Supply	1	CHITCHING ON BUTT OF CLE	Ė		+							_	0,00	0,60	0,90 52,50
### CONTROLLER Quick pin on MOSFET DRAIN Supplementary Service Cartie: xiv. Xiv. Xiv. Xiv. Xiv. Xiv. Xiv. Xiv. X			SMPS_SENSE_GATE: 24V_SMPS_SENSE_RTN SMPS_SENSE_DRAIN: 24V_SMPS_SENSE_RTN	%												
### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE on A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE on A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ### APPLICATION OF TRECUENCY PMM CONTROLLES OUTPIE ON A MOST SERVER FIN ##		2	PWM CONTROLLER output pin or MOSFET DRAIN SMPS_SENSE_GATE: 24V_SMPS_SENSE_RTN	%										22,00	39,00	44,00
Contemplate		Ī	SWITCHING FREQUENCY PWM CONTROLLER output pin or MOSFET DRAIN SMPS_SENSE_GATE: 24V_SMPS_SENSE_RTN	kHz										85,00	170,00	260,00
Power Supply: PTC Temperature Measurement 4		3	CnvTempUref (Addr.: 0x10) measuring point: S+15V / SGND signal: +15V_SENSE / GND_SENSE	mV										ŕ	·	15750,00
SMSP characteristic Switched Mode Power Supply PECA DIC ILL2 © pen PTC_IPTC_6 PTC_ACR ILL2		3	-15V_SENSE : GND_SENSE			+						-		-15750,00	-15000,00	-14250,00
SWES characteristic Switched Mode Power Supply PICA DICH L2 SPRING PROS. PLL2 SWESTERM SENSING SMPS WTEMP_SENSING SAMCE WTEMP_SENSING SAMCE WTEMP_SENSING SMPS WTEMP_SENSING SMPS WTEMP_SENSING SMPS WTEMP_SENSING SMPS WTEMP_SENSING SAMCE WTEMP_SENSING SAMCE WTEMP_SENSING SMPS	Dower Supply: DTC Temperature Measurement	4	quiescent current consumption: 24V_HI 2 @ 24VDC									_		4.00	100.00	200.00
Switched Mode Power Supply Switched Mode Power Supply PTC, ADC: HL2 @ open PTC_IPTC_6 V		Ī_	current: SENSING SMPS											,	· ·	Ť
preparation: PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_6 PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_6 PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_6 PTC_1 and PTC_6 PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_6 PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_6 PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_6 PTC_1 and PTC_6 PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_6 PTC_ADC:HZ @ SNRT-CIRCUIT PTC_1PTC_1PTC_1PTC_1PTC_1PTC_1PTC_1PTC_1		3	5V_HL2 : HL2	KHZ										4,75	5,00	5,25
Pics acconnect, the test cases referred resistors between the inputs: PTC_1 and PTC_6 PTC_1 and PTC_6 PTC_1 PTC_6 PTC_6 PTC_1 PTC_6	preparation:	_		V		_									-	5,00
DC-Link-LED acquisition via a LED sensor preparation: 90°C supply: 90°C supply: 90°C preparation: 1, All driver voltages 90°C preparation: 1, All driver must be simulated such that a connected IGBT would be switched on. Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foll capacitor must be connected between the measuring points: 108T Gate Driver voltages 100°C supply: 1, All driver must be simulated such that a connected IGBT would be switched on. Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foll capacitor must be connected between the measuring points: 108T Gate Loss Emitter RUP, G11: RUP, E11; RUN, E21 100°C SUP, E11: SUP, E11; SUN, E21 100°C SUP, E11: SUP, E11; SUP, E	Please connect, the test cases referred resistors between the inputs:															0,50
### Propertion:	PTC_1 and PTC_6		PTC_1 : PTC_6	mA										4,00	4,60	5,60
### Propertion:																
SVP_C1: SVP_E11 SVP_E1			Pilot LED flashing Frequency											5,00	7,00	15,00
Preparation: 1.) All drivers must be stimulated such that a connected IGBT would be switched on. Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foil capacitor must be connected between the measuring points: IGBT Gate to IGBT Emitter RUN_G21:RUN_E21@PWM_RN, PWM_UN=LOW:GND SVP_G11: SVP_E11, SVN_G21: SVN_E21 TWP_G11: TWP_E11, TWN_G21: TWN_E21 Short circuit: IGBT Collector to IGBT Emitter RUP_C11: RUP_E11, RUN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_C1: TWP_E11: TWN_E21 TWP_C1: TWP_E11: TWN_E21 2.) only GBA26800MX2 RUP_G11:RUP_E11@PWM_RP, PWM_UP=LOW:GND RUP_C1: RUP_E11: TWN_E21 TWN_G21:TWN_E21@PWM_SP, PWM_VP=LOW:GND TWN_G21:TWN_E21@PWM_SP, PWM_VP=LOW:GND TWN_G21:TWN_E21@PWM_SP, PWM_VP=LOW:GND TWN_G21:TWN_E21@PWM_TP, PWM_WP=LOW:GND	5VDC supply:			Hz												
Preparation: 1.) All drivers must be stimulated such that a connected IGBT would be switched on. Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foil capacitor must be connected between the measuring points: IGBT Gate to IGBT Emitter RUP_G11: RVP_E11, RVN_G21: RVN_E21 SVP_G11: SVP_E11, SVN_G21: SVN_E21 TWP_G11: TWP_E11, TWN_G21: TWN_E21 Short circuit: IGBT Collector to IGBT Emitter RUP_C1: RUP_E11, RVN_E21 SVP_C1: RVP_E11 : RVN_E21 TWP_C1: RVP_E11 : RVN_E21 TWP_C1: TWP_E11: TWN_E21 2.) only GBA26800MX2 RUP_G11:RVP_E11@PWM_RP, PWM_UPLOW:GND TVRD_G11:RVP_E11@PWM_RP, PWM_UPLOW:GND TWN_G21:TWN_E21@PWM_SP, PWM_UPLOW:GND TWN_G21:TWN_E21@PWM_SP, PWM_UPLOW:GND TWN_G21:TWN_E21@PWM_SP, PWM_UPLOW:GND TWN_G21:TWN_E21@PWM_TP, PWM_WPLOW:GND TWN_G21:TWN_E21@PWM_TP, PWM_WPLOW:GND TWN_G21:TWN_E21@PWM_TP, PWM_WPLOW:GND TWN_G21:TWN_E21@PWM_TP, PVM_WPLOW:GND																
1.) All drivers must be stimulated such that a connected IGBT would be switched on. Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foil capacitor must be connected between the measuring points: IGBT Gate to IGBT Emitter RUP_G11: RUP_E11, RUN_G21: RUN_E21 SVP_G11: SVP_E11, SVN_G21: SVN_E21 TWP_G11: TWP_E11, TWN_G21: TWN_E21 Short circuit: IGBT Collector to IGBT Emitter RUP_C1: RUP_E11: RUN_E21 SVP_C1: SVP_E11: SVN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_C1: TWP_E11: TWN_E21 2.) only GBA26800MX2	IGBT Gate Driver voltages		RUP_G11:RUP_E11@PWM_RP, PWM_UP=HIGH:GND									\neg		-16,00	-9,50	-5,00
switched on. Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foil capacitor must be connected between the measuring points: IGBT Gate to IGBT Emitter RUP_G11: RUP_E11, RUN_G21: RUN_E21 SVP_G11: SVP_E11, RVN_G21: RUN_E21 SVP_G11: TWP_E11, TWN_G21: TWN_E21 short circuit: IGBT Collector to IGBT Emitter RUP_C1: RUP_E11: RVN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_G11: TWP_E11: RVN_E21 SVP_C1: SVP_E11: RVN_E21 SVP_C1: SVP_E11: RVN_E21 SVP_C1: SVP_E11: RVN_E21 SVP_G1: SVP_E11: RVN_E21 SVP_G1: SVP_E11: RVN_E21 SVP_G1: RVP_E11: RVN_E21 TWP_G1: TWP_E11: RVN_E21 SVP_G1: RVP_E11: RVN_E21 TWP_G1: TWP_E11: RVN_E21 ZVN_G2: RVN_E21 RVN_E21 RVN_E21 TWP_G1: RVP_E11: RVN_E21 TVP_G1: RVP_G1: RVP_E11: RVN			RUP_G11:RUP_E11@PWM_RP, PWM_UP= LOW :GND											14,00	15,70	17,00
Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foil capacitor must be connected between the measuring points: IGBT Gate to IGBT Emitter RUP_E11, RUN_G21: RUN_E21 SVP_G11: SVP_E11, SVN_G21: SVN_E21 TWP_G11: TWP_E11, TWN_G21: TWN_E21 Short circuit: IGBT Collector to IGBT Emitter RUP_E11: RUN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_C1: TWP_E11: TWN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_C1: TWP_E11: TWN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_C1: TWP_E11: TWN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_G11: TWP_E11: TWN_E21 SVP_C1: SVP_C1: SVP_E11: SVN_E21 TWP_G11: TWP_E11: TWN_E21 SVP_C1:			RUN_G21:RUN_E21@PWM_RN, PWM_UN=HIGH:GND											-16,00	-9,50	-5,00
IGBT Gate to IGBT Emitter SVP_G11: SVP_E11@PWM_SP, PWM_VP=HIGH:GND SVP_G11: SVP_E11, SVN_G21: SVN_E21 SVP_G11: SVP_E11@PWM_SP, PWM_VP=LOW:GND SVP_G11: SVP_E11, TWN_G21: TWN_E21 SVN_G21: SVN_E21 PWM_SN, PWM_VN=HIGH:GND SVN_G21: SVN_E21@PWM_SN, PWM_VN=HIGH:GND SVN_G21: SVN_E21@PWM_SN, PWM_VN=LOW:GND SVN_G21: SVN_E21@PWM_SN, PWM_VN=LOW:GND SVN_G21: SVN_E21@PWM_SN, PWM_VN=LOW:GND SVN_G21: SVN_E21@PWM_SN, PWM_VN=LOW:GND SVN_G21: SVN_E21@PWM_TP, PWM_WP=HIGH:GND SVN_G21: TWP_G11: TWP_E11@PWM_TP, PWM_WP=HIGH:GND SVN_G21: TWP_G11: TWP_E11@PWM_TP, PWM_WP=LOW:GND SVN_G21: TWN_E21@PWM_TP, PWM_WP=LOW:GND SVN_G21: TWN_E21@PWM_TP, PWM_WP=LOW:GND SVN_G21: TWN_E21@PWM_TP, PWM_WP=LOW:GND SVN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND SVN_G21: TWN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND SVN_G21: TWN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND SVN_G21: TWN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND SVN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND SVN_G21: TWN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND SVN_G21: TWN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND SVN_G21: TWN_G21: TWN	Add an IGBT Gate-Emitter load, a 100nF±10% ceramic or metal foil		RUN_G21:RUN_E21@PWM_RN, PWM_UN= LOW :GND											14,00	15,70	17,00
SVP_G11: SVP_E11, SVN_G21: SVN_E21 TWP_G11: TWP_E11, TWN_G21: TWN_E21 short circuit: IGBT Collector to IGBT Emitter RUP_C1: RUP_E11: RUN_E21 SVP_C1: SVP_E11: SVN_E21 TWP_G11: TWP_E11: TWN_E21 TWP_G11: TWP_E11: SVN_E21 TWP_G11: TWP_E11: PWM_TP, PWM_WP=HIGH:GND TWP_G11: TWP_E11@PWM_TP, PWM_WP=LOW:GND TWP_G11: TWP_E11 @PWM_TP, PWM_WP=LOW:GND TWP_G11: TWP_E11@PWM_TP, PWM_WP=LOW:GND TWN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND TWN_G21: TWN_E21@PWM_TN, PWM_WN=LOW:GND	IGBT Gate to IGBT Emitter		SVP_G11:SVP_E11@PWM_SP, PWM_VP=HIGH:GND											-16,00	-9,50	-5,00
TWP_G11: TWP_E11, TWN_G21: TWN_E21 short circuit: IGBT Collector to IGBT Emitter RUP_C1: RUP_E11: RUN_E21 SVN_G21:SVN_E21@PWM_SN, PWM_VN=LOW:GND TWP_G11: TWP_E11: RUN_E21 SVN_G21:SVN_E21@PWM_SN, PWM_VN=LOW:GND TWP_G11: TWP_E11: SVN_E21 TWP_G11: TWP_E11: PWM_WP=HIGH:GND TWP_G11: TWP_E11: TWN_E21 TWP_G11: TWP_E11@PWM_TP, PWM_WP=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_VN=LOW:GND TWP_G11: TWP_E11@PWM_TP, PWM_WP=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_VN=LOW:GND TWP_G11: TWP_E11@PWM_TP, PWM_WP=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_VN=LOW:GND TWP_G11: TWP_E11 @PWM_TP, PWM_WP=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_VN=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_VN=LOW:GND TWP_G11: TWP_E11 @PWM_SN, PWM_VN=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_VN=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_VN=LOW:GND TWP_G11: TWP_E11 @PWM_SN, PWM_VN=LOW:GND TWN_G21: TWN_E21@PWM_SN, PWM_SN, PWM_				.,										14,00	15,70	17,00
short circuit: IGBT Collector to IGBT Emitter RUP_C1 : RUP_E11 : RUN_E21 SVP_C1 : SVP_E11 : SVN_E21 TWP_G11:TWP_E11@PWM_TP, PWM_WP=LOW:GND TWP_C1 : TWP_E11 : TWN_E21 TWP_G1:TWP_E11@PWM_TP, PWM_WP=LOW:GND TWN_G21:TWN_E21@PWM_TN, PWM_WN=HIGH:GND TWN_G21:TWN_E21@PWM_TN, PWM_WN=LOW:GND TWN_G21:TWN_E21@PWM_TN, PWM_WN=LOW:GND				V										-16,00	-9,50	-5,00
SVP_C1: SVP_E11: SVN_E21 TWP_G1::TWP_E11@PWM_TP, PWM_WP=LOW:GND 14,00 15,70 17,00 TWP_C1: TWP_E11: TWN_E21 TWN_G21::TWN_E21@PWM_TN, PWM_WN=HIGH:GND -16,00 -9,50 -5,00 TWN_G21::TWN_E21@PWM_TN, PWM_WN=LOW:GND 14,00 15,70 17,00 TWN_G21::TWN_E21@PWM_TN, PWM_WN=LOW:GND 14,00 15,70 17,00	short circuit: IGBT Collector to IGBT Emitter													· ·		17,00
TWP_C1 : TWP_E11 : TWN_E21 TWN_G21:TWN_E21@PWM_TN, PWM_WN=HIGH:GND TWN_G21:TWN_E21@PWM_TN, PWM_WN=LOW:GND TWN_G21:TWN_E21@PWM_TN, PWM_WN=LOW:GND TWN_G21:TWN_E21@PWM_TN, PWM_WN=LOW:GND												긔	\Box			-5,00
2.) only GBA26800MX2 TWN_G21:TWN_E21@PWM_TN, PWM_WN=LOW:GND 15,70 17,00						\pm								,	-, -	17,00 -5,00
																17,00

nes, te FUNC BA268 BA268 ked w	CTIONALITY 00MX1, MX3, marked with note: 1 000MX2, MX4, marked with note: 2 ith note: 4						Samp	oles							
olour	code legend				C	olou	r cod	e leg	end				со	lour code leger	nd
	lightgreen: Measuring points, specified conditions, equations lightblue: transfer gain K3 (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified conditions, equations, EEPROM parameter store addresses		white:	Indivi	idual n	neasu	red va	lue					lightyellow: Allo	wed value range	
					В	oard	Seria	ıl Nu	mber				LSL	Typical	USL
note	measuring point : reference point @ specified condition	unit			_										
	GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND								+		\dashv		200	360	500
	HIGH pulse width @open only short circuit RUP_C1 : RUP_E11														
	GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit RUP_E11: RUN_E21												200	360	500
	GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : SVP_E11	ms											200	360	500
	GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width												200	360	500
	@open only short circuit SVP_E11: SVN_E21 GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit TWP_C1: TWP_E11												200	360	500
	GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit TWP_E11: TWN_E21												200	360	500
n F F F	-FUNC BA268 BA268 Kked with no	mes, test points or component designatorFUNCTIONALITY BA26800MX1, MX3, marked with note: 1 BA26800MX1, MX4, marked with note: 2 riced with note: 3 DOUT CODE legend Inhtgreen: Measuring points, specified conditions, equations lightblue: transfer gain KS (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified conditions, equations, EEPROM parameter store addresses Test cases Te	mes, test points or component designatorFUNCTIONALITY BA26800MX1, MX3, marked with note: 1 BA26800MX2, MX4, marked with note: 2 rked with note: 3 Diour code legend Ilightpreen: Measuring points, specified conditions, equations Ilightpreen: Marsfer gain K3 (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified conditions, equations, EEPROM parameter store addresses Test cases Section Section	mes, test points or component designator. F-INICTIONALITY BA262800MX1, MX3, marked with note: 1 BA262800MX2, MX4, marked with note: 2 riced with note: 3 colour code legend lightgreen: Measuring points, specified conditions, equations lightstue: transfer gain K3 (plausibility) check for HW calibration darkspreen: Hardware calibration relevant measuring points, specified conditions, equations, EEPROM parameter store addresses Test cases measuring point: reference point @ specified condition GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width @ open gnly short circuit RUP_C1: RUP_E11 GBA26800MX1: OCT_INV referenced to GND HIGH pulse width @ open gnly short circuit RUP_E11: RUN_E21 ms GBA26800MX1: OCT_INV referenced to GND HIGH pulse width @ open gnly short circuit SVP_C1: SVP_E11 ms GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width @ open gnly short circuit SVP_C1: SVP_E11 ms GBA26800MX1: OCT_INV referenced to GND GBA26800MX2: CNV_OC_FLT referenced to GND HIGH pulse width @ open gnly short circuit TVP_C1: TVP_E11 GBA26800MX1: OCT_INV referenced to GND HIGH pulse width @ open gnly short circuit TVP_C1: TVP_E11 GBA26800MX1: OCT_INV referenced to GND HIGH pulse width @ open gnly short circuit TVP_C1: TVP_E11 GBA26800MX1: OCT_INV referenced to GND HIGH pulse width @ open gnly short circuit TVP_C1: TVP_E11	mes, test points or component designator. FUNCTIONALITY BA26800MX1, MX3, marked with note: 2 riced with note: 4 riced with note: 4 riced with note: 4 rightgreen: Measuring points, specified conditions, equations lightgreen: Measuring points, specified condition Test cases Test cases	mes, test points or component designator. FUNCTIONALTY BA26800MX1, MX3, marked with note: 1 BA26800MX2, MX4, marked with note: 2 rived with note: 3 Fived with note: 3 Fived with note: 4 Initialization of the second of t	mes, test points or component designator. FUNCTIONALTY BA28800MX1, MX3, marked with note: 1 BA26800MX2, MX4, marked with note: 2 fixed with note: 4 Indibitureers: Measuring points, specified conditions, equations Indibiture transfer gain K3 (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified conditions, equations, EEPROM parameter store addresses Test cases Test	Test test points or component designator. FUNCTIONALTY BA28800MX1, MX3, marked with note: 1 BA28800MX1, MX3, marked with note: 2 with note: 4 Indibuter transfer gain K3 (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified conditions, equations. ERPCMM parametr store addresses. Board Serie BA28800MX1 DCT_INV referenced to GND GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit RUP_E11 : RUN_E21 GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : SVP_E11 GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : SVP_E11 ms GBA28800MX1 OCT_INV referenced to GND HIGH pulse width @open only short circuit SVP_C1 : SVP_E11 ms GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : SVP_E11 GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : SVP_E11 GBA28800MX1 OCT_INV referenced to GND HIGH pulse width @open only short circuit SVP_C1 : TWP_E11 GBA28800MX1 OCT_INV referenced to GND HIGH pulse width @open only short circuit SVP_C1 : TWP_E11 GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : TWP_E11 GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : TWP_E11 GBA28800MX2 CNV_OC_FLT referenced to GND HIGH pulse width @open only short circuit SVP_C1 : TWP_E11	Test cases Colour code legend	Test. cate points or component designator. FUNCTIONALTY BAZEBOOMX, MX3., marked with note: 1 BAZEBOOMX, MX3., marked with note: 2 Red with note: 4 Individual measuring points, specified conditions, equations Individual repairs of the point of the poin	TechnotionAttry (Part Processor Component designator). RASSORMAX, MAX marked with note: 1 RASSORMAX, MAX marked with note: 2 ROBORDOMAX, MAX marked with note: 3 ROBORDOMAX, MAX marked with note: 3 ROBORDOMAX, MAX marked with note: 3 ROBORDOMAX, MAX marked with measured value white: Individual measured va	The component designator. FUNCTIONALTY RARSESSOMEX, MAX, amarked with note: 2 Samples Backsomex, MAX, marked with note: 2 Samples Colour code legend Lightreren: Measuring points, specified conditions, equations Lightreren: Measuring points, specified conditions, equations Lightreren: Measuring points, specified conditions, equations Lightreren: Measuring points, specified conditions Text cases Text case	Test cases Case Ca	Test cases GBA28800MX1: OCT_INV referenced to GND	Test cases Samples Samples Samples User Section Lover Section Love

Test Requirement for PBX_BIDI GBA26800MX 1. All measuring instruments must be calibrated!!! 2. As an additional document, the circuit diagram of the PCBA is required. 3. All measuring points: reference points are described in kind of netnative to the points are described in kind of netnative test cases only for PBX_BIDI, INVERTER-FUNCTIONALITY, Great cases only for PBX_BIDI, INVERTER-FUNCTIONALITY, Great cases only for PBX_BIDI, CONVERTER-FUNCTIONALITY, Great cases not required for GBA26800MX1, MX2, MX3, MX4, mass. 5. Highly Accelerated Life Test, test cases required for HALT, marked the properties of the propert	mes, te R-FUNC BA268 BA268 Irked w with no	CTIONALITY 00MX1, MX3, marked with note: 1 000MX2, MX4, marked with note: 2 tith note: 4 te: 3							nples				Lowe U ppe	Value range er Specification Lin	nit
white: Testcases description, preparation	olour 1	code legend lightgreen: Measuring points, specified conditions, equations	٦.	udaid	e: Indi	ridu al			de le	gend			lightyellow: Allow	our code legen	d
white. Testcases description, preparation darkgreen: Hardware calibration parameter handling and EEPROM parameter store addresses		lightblue: transfer gain K3 (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified conditions, equations, EEPROM parameter store addresses		Willia	e. mar	viuuai	meas	sureu	value					ved value range	
		est cases			_		Boar	d Ser	ial Nu	umbe	r		LSL	Typical	USL
Description	note	measuring point : reference point @ specified condition	unit												
POWER FAIL MONITORING thresholds PFAIL_RS_CONV signal changes from 1.) statical LOW level 2.) TOGGLE between LOW and HIGH 3.) statical HIGH level	2	PFAIL_RS_CONV / GND threshold toggle Decrease US from 7.4Vpp until PFAIL_RS_CONV threshold changes from statical LOW to TOGGLE											1,00	1,30	4,70
Umax_line_to_line=480V*1.1 resultant max. voltage range: ±3.7V (Vpp=7.4V) Umin_line_to_line=340V		PFAIL RS CONV / GND threshold statical LOW	Vpp										0.20	0.70	1,00
resultant min. voltage: Vpp=4.76V preparation: adjustable sinus voltage supply 7.4Vpp@50Hz, offset=0V to US / GND_SENSE		Decrease US from 7.4Vpp until PFAIL_RS_CONV threshold changes from TOGGLE to statical HIGH											0,30	0,70	7,00
	H														
Hall Effect Current Sensor LEM: LA200-P TAMURA: S26P200D15Y		SENSE_IR, SENSE_IU : GNDA output-current @ 0A											-1,00	0,00	1,00
VAC: T60404-N4646-X201 current conversion ratio: 1:2000 measure the output-current at a given input-current		SENSE_IR, SENSE_IU : GNDA LEM_IR_output-current @ 2A											0,80	1,00	1,2
preparation: Apply R=60ohm between: SENSE_IR, SENSE_IU and GNDA		SENSE_IR, SENSE_IU : GNDA LEM_IR_output-current @ -2A	mA										-1,20	-1,00	-0,8
SENSE_IS, SENSE_IV and GNDA		SENSE_IS, SENSE_IV : GNDA LEM_IS_output-current @ 0A											-1,00	0,00	1,0
Input-current source cable put through the hole once. Polarity markings: A positive measuring output-current is obtained on terminal M (pin 2),		SENSE_IS, SENSE_IV : GNDA LEM_IS_output-current @ 2A											0,80	1,00	1,2
when the primary input-current flows in the direction of the arrow.		SENSE_IS, SENSE_IV : GNDA LEM_IS_output-current @ -2A											-1,20	-1,00	-0,8
CHG-RELAY contact resistance	2	R_RES:RUO@REL1, REL2: contacts opened												contacts opened	
preparation: OUT EN INV:GND set to HIGH level		R_RES:RUO@REL1, REL2: contacts closed							<u> </u>					contacts closed	
OUT_EN_INV:GND set to HIGH level OUT_EN_CONV:GND set to HIGH level		S_RES:SVO@REL1, REL2: contacts opened	YES											contacts opened	
REL1, REL2: contacts closed CHRG_N:GND to LOW		S_RES:SVO@REL1, REL2: contacts closed	or NO											contacts closed	
REL1, REL2: contacts opened CHRG_N:GND to HIGH															

Test Requirement for PBX_BIDI GBA26800M	IX													
 All measuring instruments must be calibrated!!! As an additional document, the circuit diagram of the PCBA is red All measuring points: reference points are described in kind of ne PBX_BIDI alternatively assembled with CONVERTER- or INVER test cases only for PBX_BIDI, INVERTER-FUNCTIONALITY, test cases only for PBX_BIDI, CONVERTER-FUNCTIONALITY test cases not required for GBA26800MX1, MX2, MX3, MX4, Highly Accelerated Life Test, test cases required for HALT, mark 	etnames, to TER-FUNG GBA268 Y, GBA268 marked w	CTIONALITY 300MX1, MX3, marked with note: 1 300MX2, MX4, marked with note: 2 ith note: 4						Sam	ples				Value range rer Specification Li rer Specification Li	
white: Testcases description, preparation darkgreen: Hardware calibration parameter handling and EEPROM parameter store addresses	coloui	r code legend lightgreen: Measuring points, specified conditions, equations lightblue: transfer gain K3 (plausibility) check for HW calibration darkgreen: Hardware calibration relevant measuring points, specified	 }	white: In	divid					gend		col lightyellow: Allov	our code legel wed value range	nd
		conditions, equations, EEPROM parameter store addresses est cases				Вс	oard	Seri	al Nu	ımber		LSL	Typical	USL
Description	note	measuring point : reference point @ specified condition	unit											
VRS, VST voltage gain calibration	2	REF_SEC / GNDA (±10%) equation: 5V*-0.4115'0.89111=-1.83356V										-2017,40	-1834,00	-1650,60
and transfer gain K3 (plausibility) check		measuring point: DC_VRS / SGND (±10%) signal: VRS_DC_N / GND_SENSE										1852,20	2058,00	2263,80
		measuring point: VRS / AGND (±25%) signal: VRS_OUT_DC_N / GNDA equation: 2.0576V*0.89111=1.8335V	mV									1375,50	1834,00	2292,50
Linear Optocoupler GAA629CL1		measuring point: VRS_N / AGND signal: VRS_OUT_N / GNDA										-1500,00	0,00	1500,00
Vendor Vishay: IL300-EF-X017T transfer gain K3 = 0.851 - 1.061 ± 0.5% Tamb = 0 °C to 75 °C		transfer gain K3_VRS (plausibility) check proceeding:										0,80	1,00	1,10
Vendor Agilent / Avago: HCNR201 transfer gain K3 = 0.93 - 1.07		calculate with the following equation: K3_VRS=VRS_OUT_DC_N / (0.89111*VRS_DC_N)												
		measuring point: DC_VST / SGND (±10%) signal: VST_DC_N / GND_SENSE										1852,20	2058,00	2263,80
		measuring point: VST / AGND (+-25%) signal: VST_OUT_DC_N / GNDA	mV									1375,50	1834,00	2292,50
		equation: 2.0576V*0.89111=1.8335V measuring point: VST_N / AGND signal: VST_OUT_N / GNDA										-1500,00	0,00	1500,00
		transfer gain K3_VST (plausibility) check proceeding:										0,80	1,00	1,10
		Calculate with the following equation: K3_VST= VST_OUT_DC_N / (0.89111*VST_DC_N)												
IGBT TEMPERATURE MEASUREMENT and transfer gain K3 (plausibility) check		NTC1:NTC2 (1.86V±10%) measuring point: TEMP_IGBT / GNDA signal: TEMP_IGBT / GNDA										1670,00 1445,00	1860,00 2040,00	2050,00 2680,00
preparation:		equation: typical: (3.107V*0.89111)-0.7258=2.04V												
measure with connected resistor 5kohm , ±0.1% between NTC1 / NTC2		with gain range IL300: 0.81.2 min.: (0.8*2.77V)-0.7258=1.49V (-3% = 1.445V)												
		(-3% = 1.445V) max.: (1.2*2.77V)-0.7258=2.6V (+3% = 2.68V)	m∨											
		InvTempUn (Addr.: 0x12) CnvTempUn (Addr.: 0x12)	""									1080,00	1200,00	1320,00
		measuring point: TEMP_UN / GNDA signal: TEMP_UN / GNDA InvTempUin (Addr.: 0x14)										2950,00	3110,00	3270,00
		CnvTempUin (Addr.: 0x14) preparation:										2000,00	3110,00	02.10,00
		measure with connected resistor 5kohm between NTC1 / NTC2 measuring point: NTC1 / SGND												
		signal: NTC1 / GND SENSE transfer gain K3_TEMP (plausibility) check proceeding:										0,80	1,00	1,10
		calculate with the following equation: K3_TEMP=												
		(TEMP_IGBT+(TEMP_UN*0.604)) / (NTC1*0.89111)												
DC-LINK VOLTAGE MEASUREMENT and	1	InvUdcIUin (Addr.: 0x18) measuring point: DC_ME / GND_SENSE										2900,00	3000,00	3100,00
transfer gain K3 (plausibility) check		signal: DC_ME / GND_SENSE equation:												
		twical: 1.2V"2.4864=3V InvUdclUout (Addr.: 0x1A) measuring point: UDCL / GNDA										2070,00	2673,00	3220,00
preparation:		signal: UDCL / GNDA equation:	mV											
1.) CALIBRATED precision DC voltage reference OUTPUT VOLTAGE: +1.2V ±0.2% max		typical: 3V*0.89111=2,673V with gain range IL300: 0.81.2 min.: 0.8*2,673V=2.138V												
LOW NOISE: 10µVPP max (0.1Hz to 10Hz)		min.: 0.8°2,673v=2.138v (-3% = 2.07V) max:: 1.2°2,673V=3.208V												
conecetd to DCP_U_ME_1 / GND_SENSE		transfer gain K3_UDC (plausibility) check			\top							0,80	1,00	1,10
2.) short circuit is needed between DCN_U_ME_1 / GND_SENSE		proceeding: calculate with the following equation: K3_UDC= UDCL / (0.89111*DC_ME)												
DON_O_MIL_17 GND_GENGE					_									

a. As an additional document, the circuit diagram of the PCBA is rec. All measuring points: reference points are described in kind of ne. PBX_BIDI alternatively assembled with CONVERTER- or INVERtest cases only for PBX_BIDI, INVERTER-FUNCTIONALITY, test cases only for PBX_BIDI, CONVERTER-FUNCTIONALITY test cases not required for GBA26800MX1, MX2, MX3, MX4, Highly Accelerated Life Test, test cases required for HALT, market	tnames, test FER-FUNCTION GBA268001 GBA268001 Marked with	ONALITY MX1, MX3, marked with note: 1 MX2, MX4, marked with note: 2 note: 4					Samp				U p	Value range wer Specification l	Limit Limit
hite: Testcases description, preparation arkgreen: Hardware calibration parameter handling and EPROM parameter store addresses	li li d	ode legend ightgreen: Measuring points, specified conditions, equations ightblue: transfer gain K3 (plausibility) check for HW calibration larkgreen: Hardware calibration relevant measuring points, specified conditions, equations, EEPROM parameter store addresses		white: Ind			<mark>ir cod</mark> ired va		<mark>end</mark>			lour code lego wed value range	
Description		e cases measuring point : reference point @ specified condition	unit		E	Board	Seria	al Nu	mber		LSL	Typical	USL
ardware-dependent mming values sumed measured values, see table above,	C	nvTempUref (Addr.: 0x10) CnvTempUref (Addr.: 0x10) ralues margin: 140001500016000 nvTempUn (Addr.: 0x12)										l	
cultated on values in [mV] e storing in the PROM bytes from trimming values must be written into the lower	V Ir	Converged Conv									_		
resses. A26800MX1, MX3: I2C DEVICE Addr.: # 2 A26800MX2, MX4: I2C DEVICE Addr.: # 4 bus lines:	Ir C V	ralues margin: 161331073596 nvTempUout (Addr.: 0x16) CnvTempUout (Addr.: 0x16) ralues margin: 110027693784											
A26800MX1, MX3: I2C_SCL0_INV, I2C_DA0_INV B26800MX2, MX4: I2C_SCL0_CONV, I2C_DA0_CONV so to be storing, informations from the board assigned label:	c Ir	proceeding: calculate with the following equation: nvTempUout= TEMP_IGBT+9060/15000*InvTempUn CnvTempUout= TEMP_IGBT+9060/15000*CnvTempUn nvUdcIUin (Addr.: 0x18)											
	2 C v	values margin: 274330003242 CnvVrsUinDC (Addr.: 0x18) values margin: 450050005500 proceeding:											
S/N:MX1093400021 P/N:G1A26800MX1A-LF REV:2009-07-22	1 Ir	calculate with the following equation: 2nv/rsUinDC=VRS_DC_N*2_43 nvUdclUout (Addr.: 0x1A) ralues margin: 187026673412 CnvVrsUoutDC (Addr.: 0x1A)	mV										
	p c C	values margin: 350044555400 proceeding: calculate with the following equation: CnvVrsUoutDC=VRS_OUT_DC_N*2.43 CnvVrsUout (Addr.: 0x1C)											
S/N:MX2093400014 P/N:G1A26800MX2A-LF REV:2009-07-22	v c if a	constraint: if (VRS_OUT_N < 0) write (65536 - abs(VRS_OUT_N)) and if (VRS_OUT_N >= 0) then write CnvVrsUout equal to VRS_OUT_N with the convVrsUout equal to VRS_OUT_N with the convVrsUout_N with											
\26800MX1, MX 3: Package code:	2 0	Invuliii. ConvVstUinDC (Addr.: 0x1E) values margin: 450050005500 proceeding: calculate with the following equation:											
2) = 20 (dez) \(\lambda \) (\lambda \) (\	2 0	CnvVstUinDC=VST_DC_N*2.43 CnvVstUoutDC (Addr: 0x20) ralues margin: 350044555400 proceeding:											
A26800MX1: <u>MX3</u> power code: 4 = 120 (dez) : <u>160 (dez)</u>	2 0	calculate with the following equation: CnvVstUoutDC=VST_OUT_DC_N*2.43 CnvVstUout (Addr: 0x22) values margin: -150001500 constraint:											
.26800MX1, MX3: Drive version number: = 2 (dez) serial number S/N:	if a m	f (VST_OUT_N < 0) write (65536 - abs(VST_OUT_N)) and if (VST_OUT_N >= 0) then write CnvVstUout equal to VST_OUT_N with nv unit. nvManufTestId (addr: 0x1C)											
000x010F yte; ASCII string; left-aligned; bytes filled with spaces ode; Otis definition; e.g.	h a a	nust be set to enable the trimming parameter with set 0xDEC0 after end of hardware test&calibration hddr: 0x1C data: C0 hddr: 0x1D data: DE											
26800MX1: "MX1093400021 " 26800MX2: "MX2093400014 " 26800MX3: "MX3093400021 " 26800MX4: "MX4093400014 "	n h a	CnvManufTestId (addr: 0x24) nust be set to enable the trimming parameter with set 0xDEC0 after end of nardware test&calibration addr: 0x24 data: C0											
	a	ddr: 0x25 data: DE	HEX										
SBA26800MX2: "GBA26800MX2A-LF" SBA26800MX4: "GBA26800MX4A-LF" special control	I												