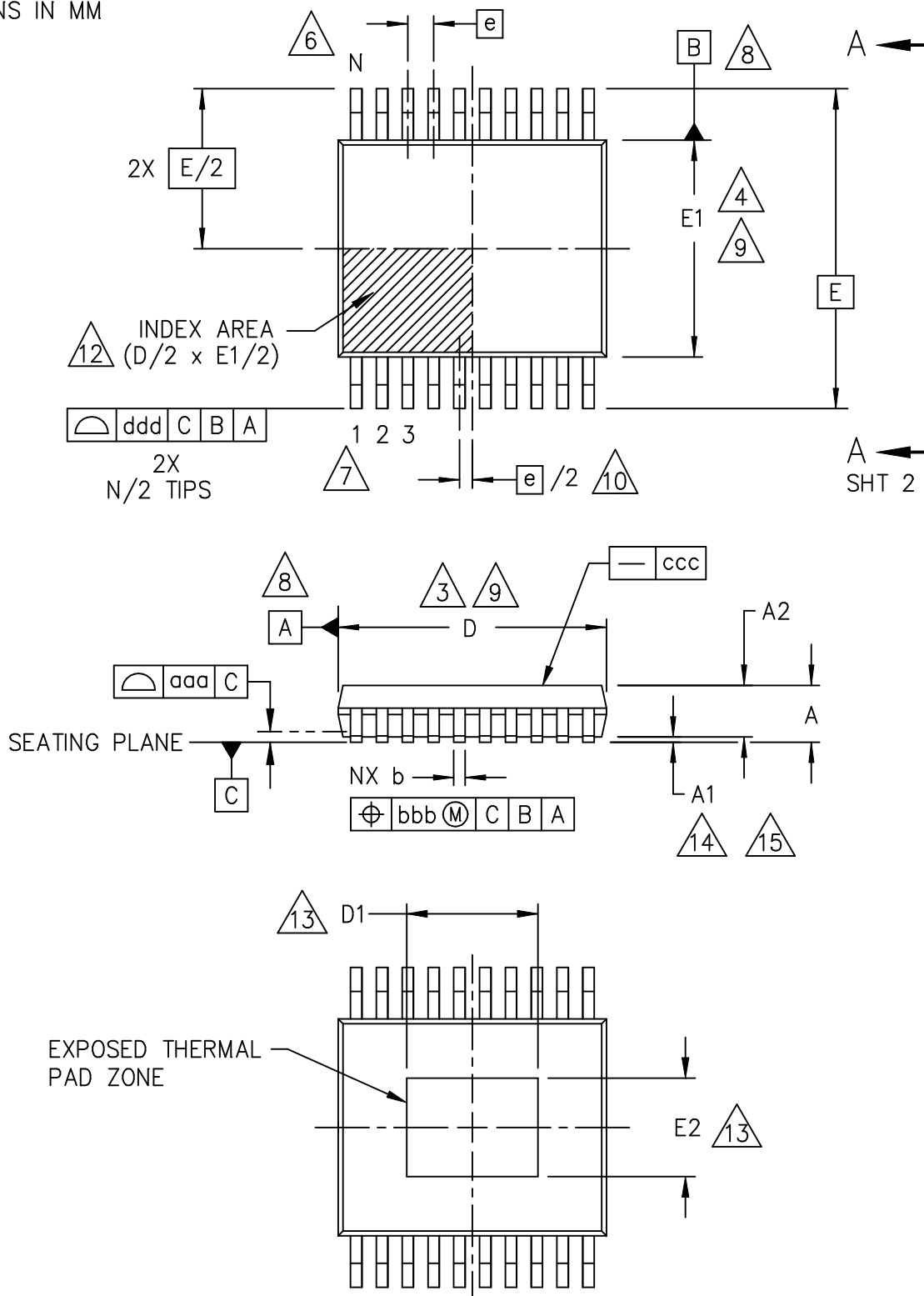


DIMENSIONS IN MM



BOTTOM VIEW  
(THERMALLY ENHANCED VARIATIONS ONLY)

JEDEC  
SOLID STATE  
PRODUCT OUTLINES

THIS *REGISTERED OUTLINE* HAS BEEN PREPARED BY THE JEDEC JC-11 COMMITTEE AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR.

TITLE  
PLASTIC THIN SHRINK  
SMALL OUTLINE PACKAGE

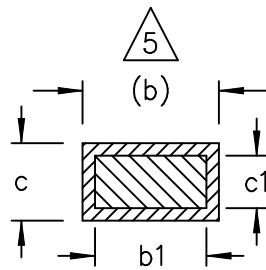
PACKAGE DESIGNATOR  
R-PDSO-G/TSSOP/HTSSOP

ISSUE  
F

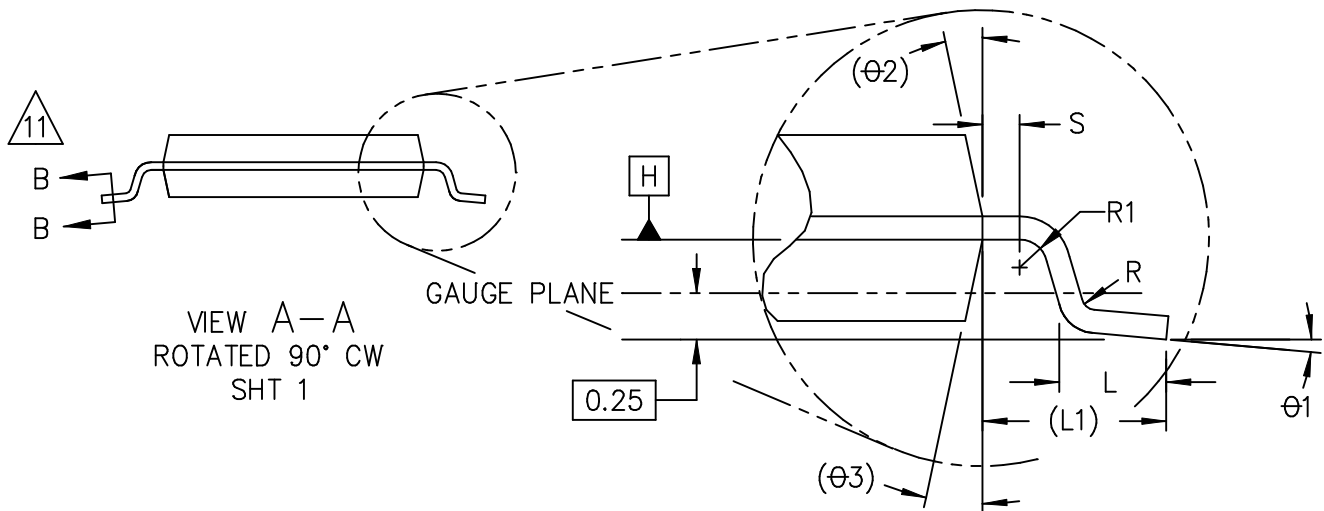
DATE  
05/01

MO-153

SHEET  
1 OF 18



SECTION B-B



S Y M B O L	COMMON DIMENSIONS (MILLIMETERS)											
	TSSOP											
	0.65 mm LEAD PITCH			N O T E	0.50 mm LEAD PITCH			N O T E	0.40 mm LEAD PITCH			N O T E
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A	—	—	1.20		—	—	1.20		—	—	1.20	
A2	0.80	1.00	1.05		0.80	1.00	1.05		0.80	1.00	1.05	
b	0.19	—	0.30	5	0.17	—	0.27	5	0.13	—	0.23	5
b1	0.19	0.22	0.25		0.17	0.20	0.23		0.13	0.16	0.19	
c	0.09	—	0.20		0.09	—	0.20		0.09	—	0.20	
c1	0.09	—	0.16		0.09	—	0.16		0.09	—	0.16	
e	0.65 BSC				0.50 BSC				0.40 BSC			
L	0.45	0.60	0.75		0.45	0.60	0.75		0.45	0.60	0.75	
L1	1.00 REF				1.00 REF				1.00 REF			
R	0.09	—	—		0.09	—	—		0.09	—	—	
R1	0.09	—	—		0.09	—	—		0.09	—	—	
S	0.20	—	—		0.20	—	—		0.20	—	—	
Ø1	0	—	8		0	—	8		0	—	8	
Ø2	12 REF				12 REF				12 REF			
Ø3	12 REF				12 REF				12 REF			
aaa	0.10				0.10				0.08			
bbb	0.10				0.08				0.07			
ccc	0.05				0.05				0.05			
ddd	0.20				0.20				0.20			
NOTE	1,2				1,2				1,2			
REF	11–360, 11–465				11–360, 11–465				11–360, 11–465			
ISSUE	A				A				A			

SUMMARY TABLE – VARIATIONS				
BODY WIDTH	LEAD PITCH	LEAD COUNT	VARIATION	
			STANDARD (TSSOP)	THERMALLY ENHANCED (HTSSOP)
4.40	0.65	8	AA	AAT
		14	AB–1	ABT–1
		16	AB	ABT
		20	AC	ACT
		24	AD	ADT
		28	AE	AET
		20	BA	BAT
	0.50	24	BB	BBT
		28	BC	BCT
		30	BC–1	BCT–1
		36	BD	BDT
		38	BD–1	BDT–1
		44	BE	BET
		50	BF	BFT
	0.40	14	SEE MO–194 VARIATION AA/AAT	
		16	SEE MO–194 VARIATION AB/ABT	
		20	SEE MO–194 VARIATION AC/ACT	
		24	CA	CAT
		32	CB	CBT
		36	CC	CCT
		48	CD	CDT
		56	SEE MO–194 VARIATION AF/AFT	
6.10	0.65	24	DA	DAT
		28	DB	DBT
		30	DB–1	DBT–1
		32	DC	DCT
		36	DD	DDT
		38	DD–1	DDT–1
		40	DE	DET
	0.50	28	EA	EAT
		36	EB	EBT
		40	EC	ECT
		44	EC–1	ECT–1
		48	ED	EDT
		56	EE	EET
		64	EF	EFT
	0.40	36	FA	FAT
		48	FB	FBT
		52	FC	FCT
		56	FD	FDT
		64	FE	FET
		80	FF	FFT
		100	SEE MO–194 VARIATION BB/BBT	

SUMMARY TABLE – VARIATIONS				
BODY WIDTH	LEAD PITCH	LEAD COUNT	VARIATION	
			STANDARD (TSSOP)	THERMALLY ENHANCED (HTSSOP)
8.00	0.65	28	GA	GAT
		32	GB	GBT
		36	GC	GCT
		40	GD	GDT
	0.50	36	HA	HAT
		40	HB	HBT
		48	HC	HCT
		56	HD	HDT
	0.40	48	JA	JAT
		52	JB	JBT
		56	JC	JCT
		60	JC-1	JCT-1
		64	JD	JDT
		68	JD-1	JDT-1

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	AA			NOTE	AB-1			NOTE	AB			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	2.90	3.00	3.10	3,9	4.90	5.00	5.10	3,9	4.90	5.00	5.10	3,9
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	8			6,7	14			7	16			6,7
REF	11-360				11-441				11-360			
ISSUE	A				C				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	AC			NOTE	AD			NOTE	AE			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	6.40	6.50	6.60	3,9	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	20			6,7	24			6,7	28			6,7
REF	11—360				11—360				11—360			
ISSUE	A				A				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	BA			NOTE	BB			NOTE	BC			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	4.90	5.00	5.10	3,9	6.40	6.50	6.60	3,9	7.70	7.80	7.90	3,9
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	20			6,7	24			6,7	28			7
REF	11–360				11–360				11–360			
ISSUE	A				A				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	BC-1			NOTE	BD			NOTE	BD-1			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9	9.60	9.70	9.80	3,9
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	30			6,7	36			7	38			6,7
REF	11-491				11-360				11-491			
ISSUE	E				A				E			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	BE			NOTE	BF			NOTE	CA			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9	4.90	5.00	5.10	3,9
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
e	0.50 BSC				0.50 BSC				0.40 BSC			
N	44			6,7	50			6,7	24			6,7
REF	11-491				11-491				11-360			
ISSUE	E				E				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	CB			NOTE	CC			NOTE	CD			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	6.40	6.50	6.60	3,9	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
e	0.40 BSC				0.40 BSC				0.40 BSC			
N	32			6,7	36			6,7	48			6,7
REF	11-360				11-360				11-360			
ISSUE	A				A				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	DA			NOTE	DB			NOTE	DB-1			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9	9.60	9.70	9.80	3,9
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	24			6,7	28			7	30			6,7
REF	11-360				11-360				11-441			
ISSUE	A				A				C			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	DC			NOTE	DD			NOTE	DD-1			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9	12.40	12.50	12.60	3,9
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	32			6,7	36			7	38			6,7
REF	11-360				11-360				11-491			
ISSUE	A				A				E			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	DE			NOTE	EA			NOTE	EB			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	13.90	14.00	14.10	3,9	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
e	0.65 BSC				0.50 BSC				0.50 BSC			
N	40			6,7	28			6,7	36			6,7
REF	11–360				11–360				11–360			
ISSUE	A				A				A			



SYMBOL	STANDARD VARIATIONS (TSSOP)											
	EC			NOTE	EC-1			NOTE	ED			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	10.90	11.00	11.10	3,9	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	40			7	44			6,7	48			6,7
REF	11-360				11-441				11-360			
ISSUE	A				C				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	EE			NOTE	EF			NOTE	FA			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	13.90	14.00	14.10	3,9	16.90	17.00	17.10	3,9	7.70	7.80	7.90	3,9
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
e	0.50 BSC				0.50 BSC				0.40 BSC			
N	56			6,7	64			6,7	36			6,7
REF	11–360				11–397				11–360			
ISSUE	A				B				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	FB			NOTE	FC			NOTE	FD			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	9.60	9.70	9.80	3,9	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
e	0.40 BSC				0.40 BSC				0.40 BSC			
N	48			6,7	52			6,7	56			6,7
REF	11—360				11—360				11—360			
ISSUE	A				A				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	FE			NOTE	FF			NOTE	GA			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	13.90	14.00	14.10	3,9	16.90	17.00	17.10	3,9	9.60	9.70	9.80	3,9
E	8.10 BSC				8.10 BSC				10.00 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	7.90	8.00	8.10	4,9
e	0.40 BSC				0.40 BSC				0.65 BSC			
N	64			6,7	80			6,7	28			6,7
REF	11–360				11–397				11–360			
ISSUE	A				B				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	GB			NOTE	GC			NOTE	GD			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9	13.90	14.00	14.10	3,9
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	32			6,7	36			6,7	40			6,7
REF	11–360				11–360				11–360			
ISSUE	A				A				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	HA			NOTE	HB			NOTE	HC			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	9.60	9.70	9.80	3,9	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	36			6,7	40			6,7	48			6,7
REF	11–360				11–360				11–360			
ISSUE	A				A				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	HD			NOTE	JA			NOTE	JB			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	13.90	14.00	14.10	3,9	9.60	9.70	9.80	3,9	10.90	11.00	11.10	3,9
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
e	0.50 BSC				0.40 BSC				0.40 BSC			
N	56			6,7	48			6,7	52			6,7
REF	11–360				11–360				11–360			
ISSUE	A				A				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	JC			NOTE	JC-1			NOTE	JD			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15		0.05	—	0.15		0.05	—	0.15	
D	12.40	12.50	12.60	3,9	12.40	12.50	12.60	3,9	13.90	14.00	14.10	3,9
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
e	0.40 BSC				0.40 BSC				0.40 BSC			
N	56			7	60			6,7	64			7
REF	11-360				11-441				11-360			
ISSUE	A				C				A			

SYMBOL	STANDARD VARIATIONS (TSSOP)											
	JD-1			NOTE				NOTE				NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.05	—	0.15									
D	13.90	14.00	14.10	3,9								
E	10.00 BSC											
E1	7.90	8.00	8.10	4,9								
e	0.40 BSC											
N	68			6,7								
REF	11-441											
ISSUE	C											

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	AAT			NOTE	ABT-1			NOTE	ABT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	2.90	3.00	3.10	3,9	4.90	5.00	5.10	3,9	4.90	5.00	5.10	3,9
D1	1.00	—	—	13	1.70	—	—	13	1.70	—	—	13
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
E2	1.50	—	—	13	1.50	—	—	13	1.50	—	—	13
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	8			6,7	14			7	16			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	ACT			NOTE	ADT			NOTE	AET			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	6.40	6.50	6.60	3,9	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9
D1	2.20	—	—	13	2.70	—	—	13	3.30	—	—	13
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
E2	1.50	—	—	13	1.50	—	—	13	1.50	—	—	13
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	20			6,7	24			6,7	28			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	BAT			NOTE	BBT			NOTE	BCT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	4.90	5.00	5.10	3,9	6.40	6.50	6.60	3,9	7.70	7.80	7.90	3,9
D1	1.70	—	—	13	2.20	—	—	13	2.70	—	—	13
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
E2	1.50	—	—	13	1.50	—	—	13	1.50	—	—	13
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	20			6,7	24			6,7	28			7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE PLASTIC THIN SHRINK SMALL OUTLINE PACKAGE	ISSUE F	DATE 05/01	MO-153	SHEET 12 OF 18
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SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	BCT-1			NOTE	BDT			NOTE	BDT-1			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9	9.60	9.70	9.80	3,9
D1	2.70	—	—	13	3.30	—	—	13	3.30	—	—	13
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
E2	1.50	—	—	13	1.50	—	—	13	1.50	—	—	13
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	30			6,7	36			7	38			6,7
REF	11-491				11-441				11-491			
ISSUE	E				C				E			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	BET			NOTE	BFT			NOTE	CAT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9	4.90	5.00	5.10	3,9
D1	3.80	—	—	13	4.30	—	—	13	1.70	—	—	13
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
E2	1.50	—	—	13	1.50	—	—	13	1.50	—	—	13
e	0.50 BSC				0.50 BSC				0.40 BSC			
N	44			6,7	50			6,7	24			6,7
REF	11-491				11-491				11-441			
ISSUE	E				E				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	CBT			NOTE	CCT			NOTE	CDT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	6.40	6.50	6.60	3,9	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9
D1	2.20	—	—	13	2.70	—	—	13	3.30	—	—	13
E	6.40 BSC				6.40 BSC				6.40 BSC			
E1	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9	4.30	4.40	4.50	4,9
E2	1.50	—	—	13	1.50	—	—	13	1.50	—	—	13
e	0.40 BSC				0.40 BSC				0.40 BSC			
N	32			6,7	36			6,7	48			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE PLASTIC THIN SHRINK SMALL OUTLINE PACKAGE	ISSUE F	DATE 05/01	MO-153	SHEET 13 OF 18
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SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	DAT			NOTE	DBT			NOTE	DBT-1			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9	9.60	9.70	9.80	3,9
D1	2.70	—	—	13	3.30	—	—	13	3.30	—	—	13
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
E2	2.10	—	—	13	2.10	—	—	13	2.10	—	—	13
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	24			6,7	28			7	30			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	DCT			NOTE	DDT			NOTE	DDT-1			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9	12.40	12.50	12.60	3,9
D1	3.80	—	—	13	4.30	—	—	13	4.30	—	—	13
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
E2	2.10	—	—	13	2.10	—	—	13	2.10	—	—	13
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	32			6,7	36			7	38			6,7
REF	11-441				11-441				11-491			
ISSUE	C				C				E			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	DET			NOTE	EAT			NOTE	EBT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	13.90	14.00	14.10	3,9	7.70	7.80	7.90	3,9	9.60	9.70	9.80	3,9
D1	4.90	—	—	13	2.70	—	—	13	3.30	—	—	13
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
E2	2.10	—	—	13	2.10	—	—	13	2.10	—	—	13
e	0.65 BSC				0.50 BSC				0.50 BSC			
N	40			6,7	28			6,7	36			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE PLASTIC THIN SHRINK SMALL OUTLINE PACKAGE	ISSUE F	DATE 05/01	MO-153	SHEET 14 OF 18
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SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	ECT			NOTE	ECT-1			NOTE	EDT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	10.90	11.00	11.10	3,9	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9
D1	3.80	—	—	13	3.80	—	—	13	4.30	—	—	13
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
E2	2.10	—	—	13	2.10	—	—	13	2.10	—	—	13
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	40			7	44			6,7	48			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	EET			NOTE	EFT			NOTE	FAT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	13.90	14.00	14.10	3,9	16.90	17.00	17.10	3,9	7.70	7.80	7.90	3,9
D1	4.90	—	—	13	5.90	—	—	13	2.70	—	—	13
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
E2	2.10	—	—	13	2.10	—	—	13	2.10	—	—	13
e	0.50 BSC				0.50 BSC				0.40 BSC			
N	56			6,7	64			6,7	36			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	FBT			NOTE	FCT			NOTE	FDT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	9.60	9.70	9.80	3,9	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9
D1	3.30	—	—	13	3.80	—	—	13	4.30	—	—	13
E	8.10 BSC				8.10 BSC				8.10 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9
E2	2.10	—	—	13	2.10	—	—	13	2.10	—	—	13
e	0.40 BSC				0.40 BSC				0.40 BSC			
N	48			6,7	52			6,7	56			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE PLASTIC THIN SHRINK SMALL OUTLINE PACKAGE	ISSUE F	DATE 05/01	MO-153	SHEET 15 OF 18
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SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	FET			NOTE	FFT			NOTE	GAT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	13.90	14.00	14.10	3,9	16.90	17.00	17.10	3,9	9.60	9.70	9.80	3,9
D1	4.90	—	—	13	5.90	—	—	13	3.30	—	—	13
E	8.10 BSC				8.10 BSC				10.00 BSC			
E1	6.00	6.10	6.20	4,9	6.00	6.10	6.20	4,9	7.90	8.00	8.10	4,9
E2	2.10	—	—	13	2.10	—	—	13	2.80	—	—	13
e	0.40 BSC				0.40 BSC				0.65 BSC			
N	64			6,7	80			6,7	28			6,7
REF	11–441				11–441				11–441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	GBT			NOTE	GCT			NOTE	GDT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9	13.90	14.00	14.10	3,9
D1	4.90	—	—	13	4.30	—	—	13	4.90	—	—	13
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
E2	2.80	—	—	13	2.80	—	—	13	2.80	—	—	13
e	0.65 BSC				0.65 BSC				0.65 BSC			
N	32			6,7	36			6,7	40			6,7
REF	11–441				11–441				11–441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	HAT			NOTE	HBT			NOTE	HCT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	9.60	9.70	9.80	3,9	10.90	11.00	11.10	3,9	12.40	12.50	12.60	3,9
D1	3.30	—	—	13	3.80	—	—	13	5.90	—	—	13
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
E2	2.80	—	—	13	2.80	—	—	13	2.80	—	—	13
e	0.50 BSC				0.50 BSC				0.50 BSC			
N	36			6,7	40			6,7	48			6,7
REF	11–441				11–441				11–441			
ISSUE	C				C				C			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE PLASTIC THIN SHRINK SMALL OUTLINE PACKAGE	ISSUE F	DATE 05/01	MO–153	SHEET 16 OF 18
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SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	HDT			NOTE	JAT			NOTE	JBT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	13.90	14.00	14.10	3,9	9.60	9.70	9.80	3,9	10.90	11.00	11.10	3,9
D1	4.90	—	—	13	3.30	—	—	13	3.80	—	—	13
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
E2	2.80	—	—	13	2.80	—	—	13	2.80	—	—	13
e	0.50 BSC				0.40 BSC				0.40 BSC			
N	56			6,7	48			6,7	52			6,7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	JCT			NOTE	JCT-1			NOTE	JDT			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14	0.00	—	0.15	14	0.00	—	0.15	14
D	12.40	12.50	12.60	3,9	12.40	12.50	12.60	3,9	13.90	14.00	14.10	3,9
D1	5.90	—	—	13	5.90	—	—	13	4.90	—	—	13
E	10.00 BSC				10.00 BSC				10.00 BSC			
E1	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9	7.90	8.00	8.10	4,9
E2	2.80	—	—	13	2.80	—	—	13	2.80	—	—	13
e	0.40 BSC				0.40 BSC				0.40 BSC			
N	56			7	60			6,7	64			7
REF	11-441				11-441				11-441			
ISSUE	C				C				C			

SYMBOL	THERMALLY ENHANCED VARIATIONS (HTSSOP)											
	JDT-1			NOTE				NOTE				NOTE
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
A1	0.00	—	0.15	14								
D	13.90	14.00	14.10	3,9								
D1	4.90	—	—	13								
E	10.00 BSC											
E1	7.90	8.00	8.10	4,9								
E2	2.80	—	—	13								
e	0.40 BSC											
N	68			6,7								
REF	11-441											
ISSUE	C											

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.

3. DIMENSION 'D' DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE.
  4. DIMENSION 'E1' DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 PER SIDE.
  5. DIMENSION 'b' DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 MM TOTAL IN EXCESS OF THE 'b' DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OF THE FOOT. MINIMUM SPACE BETWEEN PROTRUSION AND ADJACENT LEAD IS 0.07 MM.
  6. 'N' IS THE MAXIMUM NUMBER OF TERMINAL POSITIONS FOR THE SPECIFIED PACKAGE LENGTH. DEPOPULATION IS ALLOWED, BUT ONLY UNDER THE FOLLOWING CONDITIONS:
    - A) DEPOPULATION MAY REDUCE 'N' BY INCREMENTS OF FOUR (4) LEADS ONLY
    - B) ONLY END LEADS MAY BE REMOVED
    - C) LEADS MUST BE SYMMETRICALLY ARRANGED WITH RESPECT TO DATUM A (SEE NOTE 10) TO AVOID ANY ARRAY SHIFTING.
  7. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
  8. DATUMS A AND B TO BE DETERMINED AT DATUM PLANE H.
  9. DIMENSIONS 'D' AND 'E1' TO BE DETERMINED AT DATUM PLANE H.
  10. THIS DIMENSION APPLIES ONLY TO VARIATIONS WITH AN EVEN NUMBER OF LEADS PER SIDE. FOR VARIATIONS WITH AN ODD NUMBER OF LEADS PER SIDE, THE "CENTER" LEAD MUST BE COINCIDENT WITH THE PACKAGE CENTERLINE, DATUM A.
  11. CROSS SECTION B-B TO BE DETERMINED AT 0.10 TO 0.25 MM FROM THE LEAD TIP.
  12. DETAILS OF THE PIN 1 IDENTIFIER ARE OPTIONAL, BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
  13. 'D1' AND 'E2' MINIMUM DIMENSIONS OF THERMALLY ENHANCED TYPES ARE VARIABLES DEPENDING ON DEVICE FUNCTION (DIE PADDLE SIZE). 'D1' AND 'E2' MAXIMUM DIMENSIONS CAN BE EQUAL TO 'D/E1' MAXIMUM DIMENSIONS. END USER SHOULD VERIFY ACTUAL SIZE OF EXPOSED THERMAL PAD FOR SPECIFIC DEVICE APPLICATION.
  14. AI IS DEFINED AS THE VERTICAL DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT ON THE PACKAGE BODY EXCLUDING THE LID AND OR THERMAL ENHANCEMENT ON CAVITY DOWN PACKAGE CONFIGURATIONS.
- APPLICATION NOTE:
15. CAUTION SHOULD BE TAKEN DURING DESIGN, ASSEMBLY AND PROCESSING TO PREVENT DEPOSITED BOARD SOLDER FROM HOLDING THE LEADS UP OFF THE BOARD. THIS IS APPLICABLE TO THERMAL ENHANCED VARIATIONS WHERE "A1" DIMENSION IS ALLOWED TO BE ZERO.