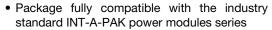


Three Phase Bridge, 130 A to 160 A (Power Modules)



PRIMARY CHARACTERISTICS			
Io	130 A to 160 A		
V_{RRM}	800 V to 1600 V		
Package	MTK		
Circuit configuration	Three phase bridge		

FEATURES





- High thermal conductivity package, electrically insulated case
- Excellent power volume ratio
- 4000 V_{RMS} isolating voltage
- UL E78996 approved
- · Designed and qualified for industrial level
- · Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

DESCRIPTION

A range of extremely compact, encapsulated three phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and heavy duty applications.

MAJOR RATINGS AND CHARACTERISTICS					
SYMBOL	CHARACTERISTICS	VALUES 130MT.K	VALUES 160MT.K	UNITS	
		130 (160)	160 (200)	А	
I _O	T _C	85 (62)	85 (60)	°C	
1	50 Hz	1130	1430		
I _{FSM}	60 Hz	1180	1500	- A	
124	50 Hz	6400	10 200	A2-	
I ² t	60 Hz	5800	9300	A ² s	
I ² √t		64 000	102 000	A ² √s	
V _{RRM}	Range	800 to	1600	V	
T _{Stg}	Panga	-40 to 150		°C	
TJ	Range	-40 to	150	7	

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS						
TYPE NUMBER	VOLTAGE CODE	V _{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V _{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I _{RRM} MAXIMUM AT T _J = MAXIMUM mA		
VS-130MT.K VS-160MT.K	80	800	900			
	100	1000	1100			
	120	1200	1300	10		
	140	1400	1500			
	160	1600	1700			





FORWARD CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES 130MT.K	VALUES 160MT.K	UNITS	
Maximum DC output current	I _O	120° rect. conduction angle		130 (160)	160 (200)	Α	
at case temperature				85 (62)	85 (60)	°C	
Maximum peak, one-cycle forward, non-repetitive surge current	I _{FSM}	t = 10 ms	No voltage	Initial	1130	1430	A
		t = 8.3 ms	reapplied		1180	1500	
		t = 10 ms	100 % V _{RRM}		950	1200	
		t = 8.3 ms	reapplied		1000	1260	
Maximum I ² t for fusing	l ² t	t = 10 ms	No voltage	$T_J = T_J$ maximum	6400	10 200	A ² s
		t = 8.3 ms	reapplied	-	5800	9300	
		t = 10 ms	100 % V _{RRM}		4500	7200	
		t = 8.3 ms	reapplied		4100	6600	
Maximum I ² √t for fusing	I ² √t	t = 0.1 ms to 10 ms, no voltage reapplied		64 000	102 000	A²√s	
Low level value of threshold voltage	V _{T(TO)1}	(16.7 % x π x $I_{T(AV)}$ < I < π x $I_{T(AV)}$), I_{J} maximum		0.78	0.81	V	
High level value of threshold voltage	V _{T(TO)2}	$(I > \pi \times I_{T(AV)}), T_J$ maximum		0.99	1.04	V	
Low level value of forward slope resistance	r _{f1}	16.7 % x π x $I_{T(AV)}$ < I < π x $I_{T(AV)}$, T_J maximum		4.59	3.52	mΩ	
High level of forward slope resistance	r _{f2}	$(I > \pi \times I_{T(AV)}), T_J$ maximum		4.17	3.13	11122	
Maximum forward voltage drop	V _{FM}	I_{pk} = 200 A, T_J = 25 °C, t_p = 400 μ s single junction		1.63	1.49	V	
RMS isolation voltage	V _{ISOL}	T _J = 25 °C, all terminal shorted f = 50 Hz, t = 1 s		40	00		

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER SYMBOL		TEST CONDITIONS	VALUES 130MT.K	VALUES 160MT.K	UNITS
Maximum junction operating and storage temperature range	T _J , T _{Stg}		-40 to	o 150	°C
	R _{thJC}	DC operation per module	0.16	0.12	K/W
Maximum thermal resistance, junction to case		DC operation per junction	0.93	0.73	
		120° rect. conduction angle per module	0.18	0.15	
		120° rect. conduction angle per junction	1.08	0.88	
Maximum thermal resistance, case to heatsink R _{thCS}		Per module Mounting surface smooth, flat and greased	0.03		
Mounting to heatsink		A mounting compound is recommended and 4 to 6		o 6	- Nm
torque ± 10 % to terminal		the torque should be rechecked after a period of 3 hours to allow for the spread of the	3 to 4		
Approximate weight		compound. Lubricated threads.	176		g

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150

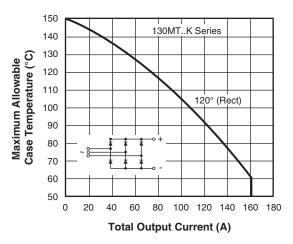
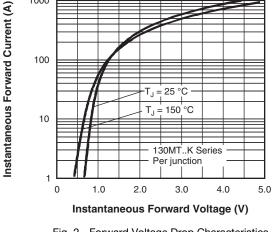


Fig. 1 - Current Rating Characteristics



1000

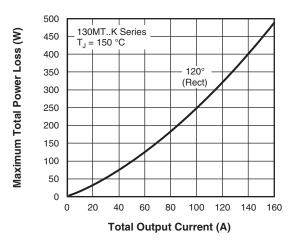
500

450

400

350

Fig. 2 - Forward Voltage Drop Characteristics



Maximum Total Power Loss (W) 300 250 200 150 100 50 0 0 25 100 125 75 Maximum Allowable Ambient Temperature (°C)

Fig. 3 - Total Power Loss Characteristics

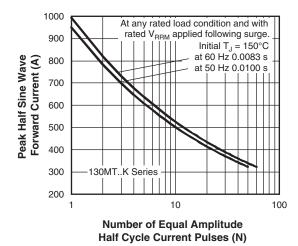


Fig. 4 - Maximum Non-Repetitive Surge Current

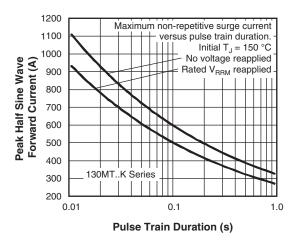


Fig. 5 - Maximum Non-Repetitive Surge Current

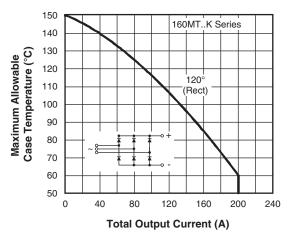


Fig. 6 - Current Ratings Characteristic

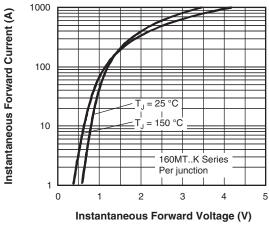


Fig. 7 - Forward Voltage Drop Characteristics

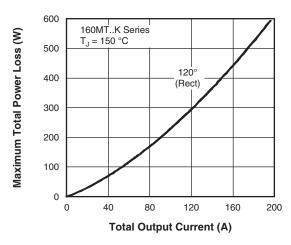
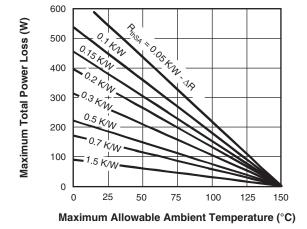
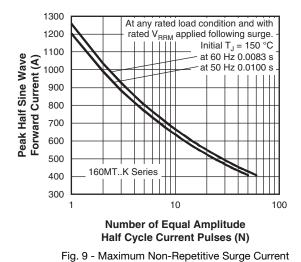


Fig. 8 - Total Power Loss Characteristics

1500





Maximum non-repetitive surge current 1400 versus pulse train duration. 1300 Initial T₁ = 150 °C Forward Current (A) 1200 1000 000 800 600 No voltage reapplied Peak Half Sine Wave Rated V_{RRM} reapplied 500 160MT..K Series 400 300 0.01 0.1 1.0 Pulse Train Duration (s)

Fig. 10 - Maximum Non-Repetitive Surge Current

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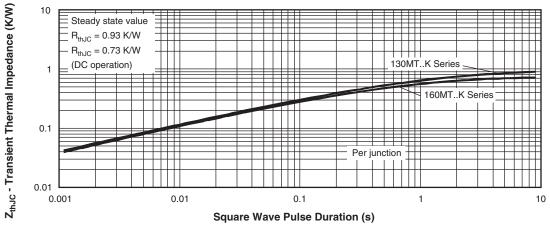
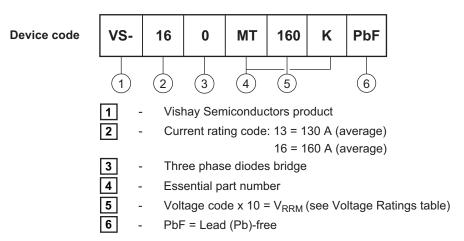


Fig. 11 - Thermal Impedance ZthJC Characteristics

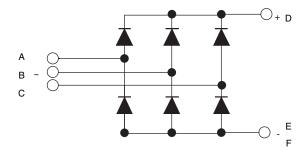
ORDERING INFORMATION TABLE



Note

• To order the optional hardware go to: www.vishay.com/doc?95172

CIRCUIT CONFIGURATION

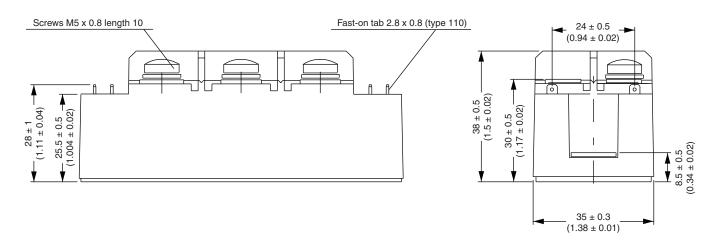


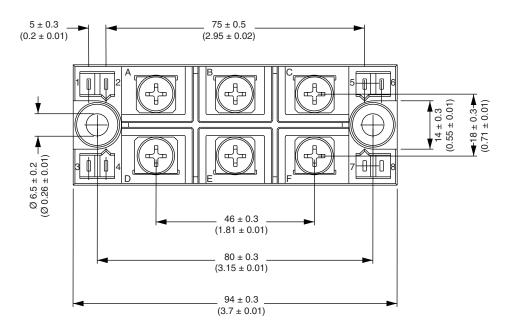
LINKS TO RELATED DOCUMENTS				
Dimensions	www.vishay.com/doc?95004			



MTK (with and without optional barrier)

DIMENSIONS WITH OPTIONAL BARRIERS in millimeters (inches)

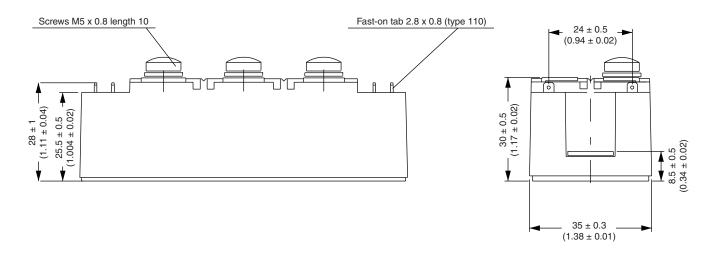


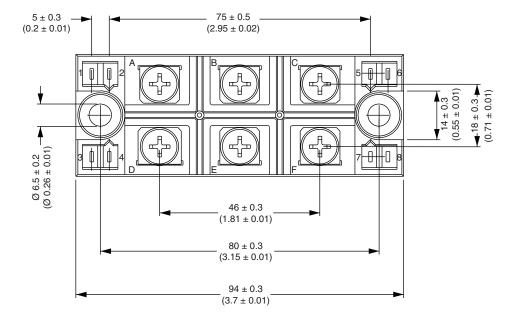


Vishay Semiconductors MTK (with and without optional barrier)



DIMENSIONS WITHOUT OPTIONAL BARRIERS in millimeters (inches)







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