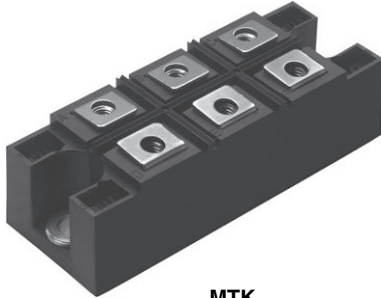


Three Phase Bridge (Power Module), 200 A



MTK

FEATURES

- Package fully compatible with the industry standard INT-A-PAK power modules series
- High thermal conductivity package, electrically insulated case
- Low power loss
- Excellent power volume ratio, outline for easy connections to power transistor and IGBT modules
- 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


RoHS
COMPLIANT

PRIMARY CHARACTERISTICS	
I_o	200 A
V_{RRM}	400 V
Package	MTK
Circuit configuration	Three phase bridge

DESCRIPTION

It extends the existing range of MT...KB bridges an 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	UNITS
I_o		200	A
	T_c	85	°C
I_{FSM}	50 Hz	1800	A
	60 Hz	1880	
I^2t	50 Hz	16.2	kA ² s
	60 Hz	14.7	
$I^2\sqrt{t}$		162	kA ² √s
V_{RRM}		400	V
T_{Stg}	Range	-40 to +150	°C
T_J			

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS			
TYPE NUMBER	V_{RRM} : MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} : MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT $T_J = 150$ °C mA
VS-200MT40KPbF	400	500	6



FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum RMS output current at case temperature	I_O	120° rect. conduction angle		200	A
				85	°C
Maximum peak, one-cycle forward, non-repetitive on state surge current	I_{TSM}	t = 10 ms	No voltage reappplied	1800	A
		t = 8.3 ms		1880	
		t = 10 ms	100 % V_{RRM} reappplied	1520	
		t = 8.3 ms		1590	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reappplied	16.2	kA ² s
		t = 8.3 ms		14.7	
		t = 10 ms	100 % V_{RRM} reappplied	11.6	
		t = 8.3 ms		12.6	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reappplied		162	kA ² √s
Value of threshold voltage	$V_{F(TO)}$	T_J maximum		0.76	V
Slope resistance	r_t			2.4	mΩ
Maximum forward voltage drop	V_{FM}	$I_{pk} = 200$ A, $T_J = 25$ °C, $t_p = 400$ μs single junction		1.40	V
Isolation voltage	V_{ISOL}	$T_J = 25$ °C all terminal shorted, f = 50 Hz, t = 1 s		4000	

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating and storage temperature range	T_J, T_{Stg}			-40 to +150	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation per module		0.12	K/W
		DC operation per junction		0.69	
		120° rect. conduction angle per module		0.14	
		120° rect. conduction angle per junction		0.82	
Maximum thermal resistance, case to heatsink per module	R_{thCS}	Mounting surface smooth, flat and greased. Heatsink compound thermal conductivity = 0.42 W/mK		0.033	
Mounting torque ± 10 % to heatsink		A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow or the spread of the compound. Lubricated threads.		4 to 6	Nm
Approximate weight				176	g

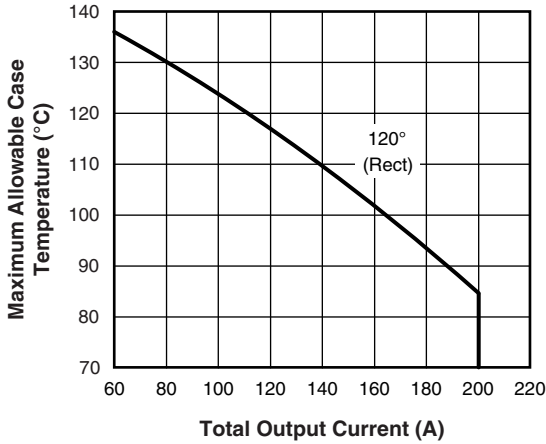


Fig. 1 - Current Rating Characteristics

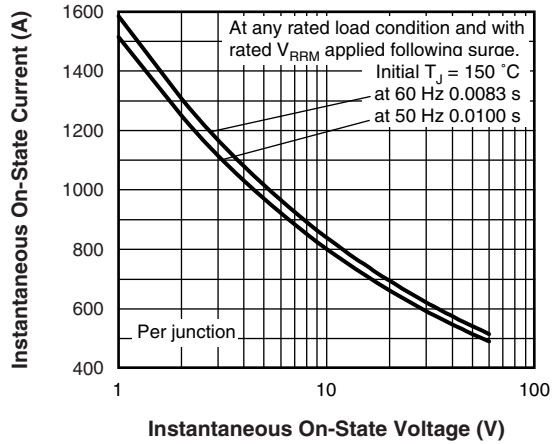


Fig. 3 - Maximum Non-Repetitive Surge Current

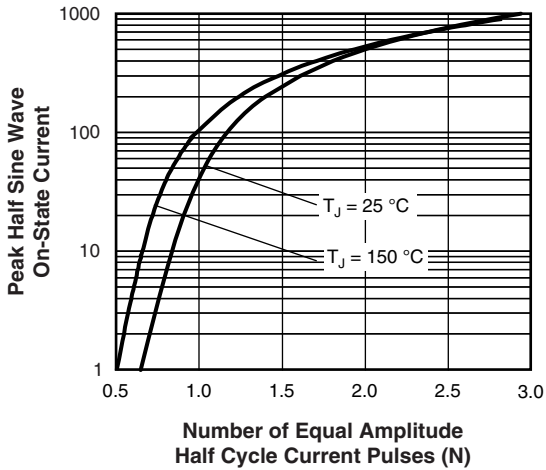


Fig. 2 - On-State Voltage Drop Characteristics

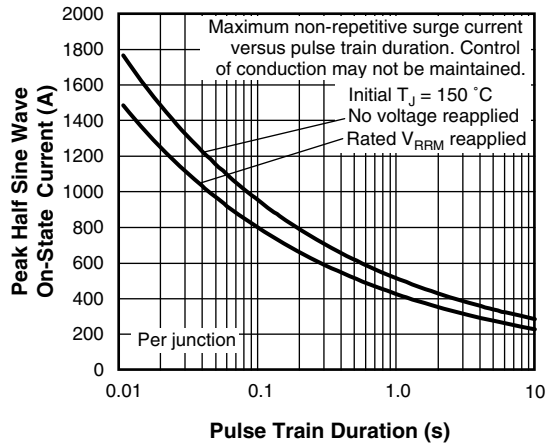


Fig. 4 - Maximum Non-Repetitive Surge Current

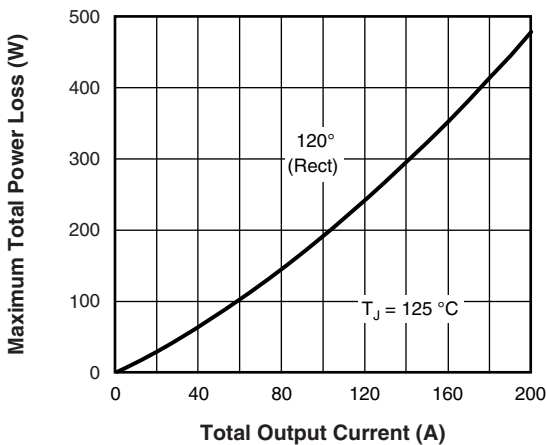
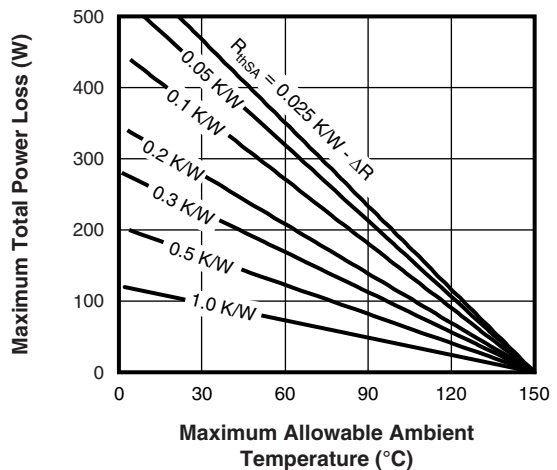


Fig. 5 - Current Rating Nomogram (1 Module Per Heatsink)



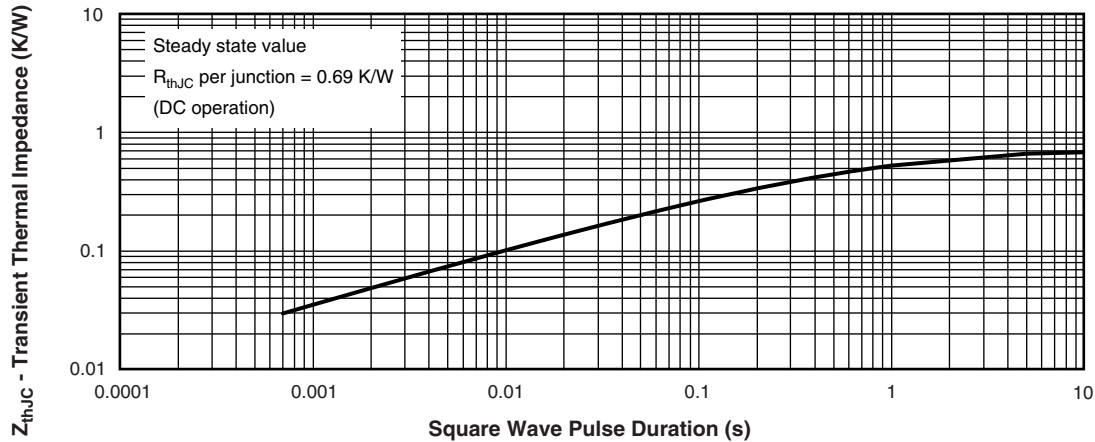


Fig. 6 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

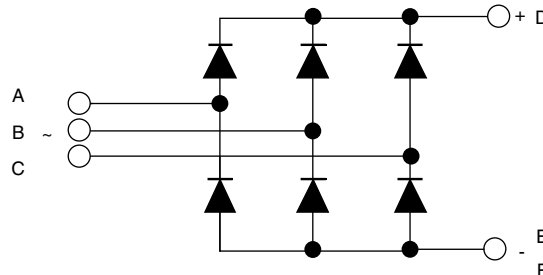
Device code	VS-	20	0	MT	40	K	PbF
	①	②	③	④	⑤	⑥	⑥

①	- Vishay Semiconductors product
②	- Current rating code: 20 = 200 A (average)
③	- Three phase diodes bridge
④	- Essential part number
⑤	- Voltage code x 10 = V_{RRM} (40 = 400 V)
⑥	- PbF = Lead (Pb)-free

Note

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

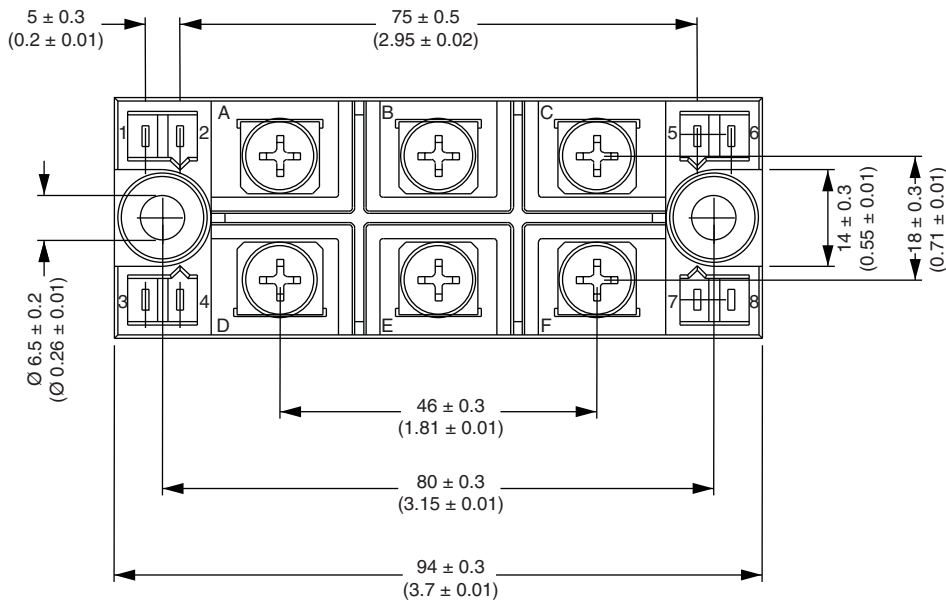
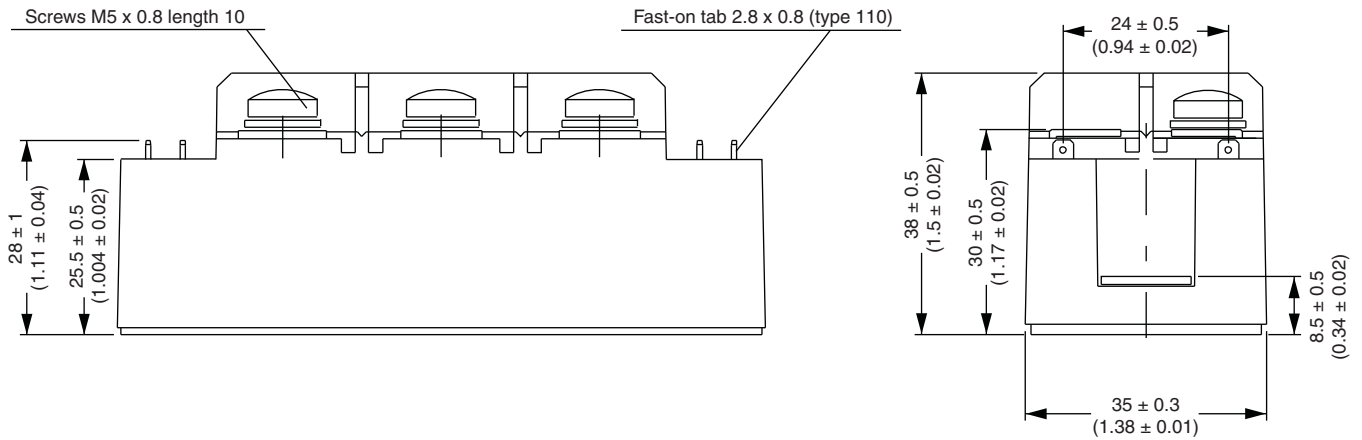
CIRCUIT CONFIGURATION



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

MTK (with and without optional barrier)

DIMENSIONS WITH OPTIONAL BARRIERS in millimeters (inches)

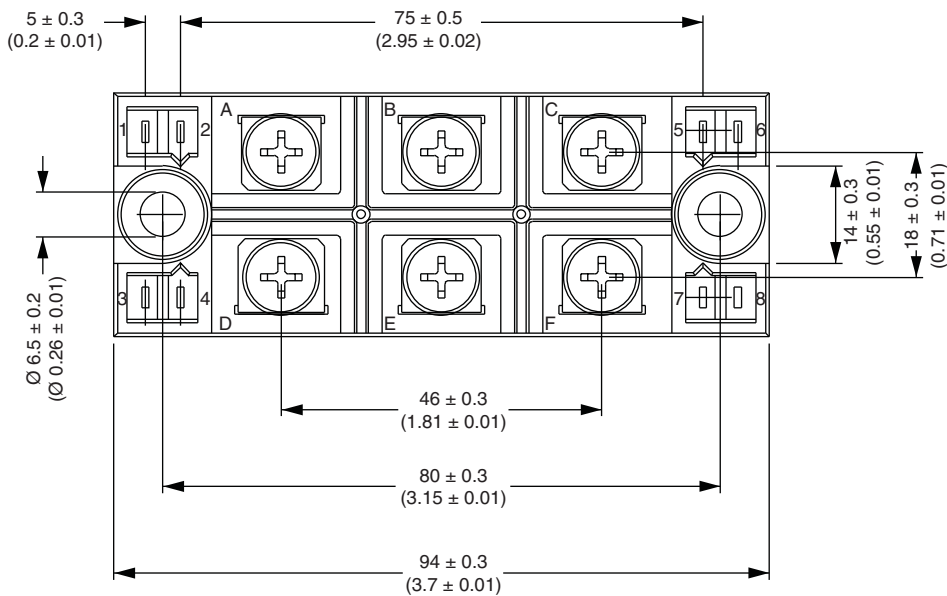
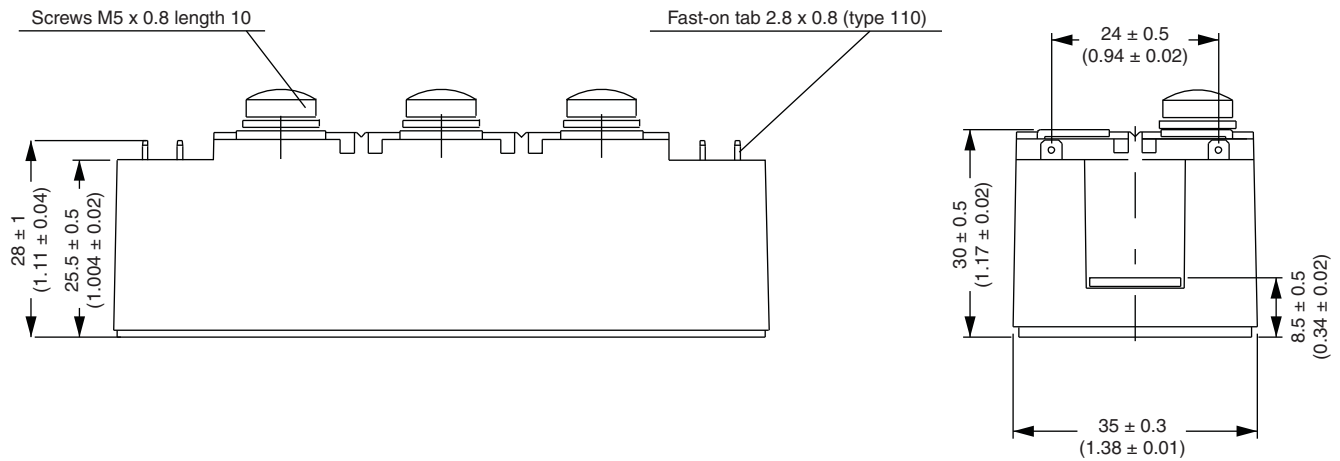


Outline Dimensions

Vishay Semiconductors MTK (with and without optional barrier)



DIMENSIONS WITHOUT OPTIONAL BARRIERS in millimeters (inches)





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