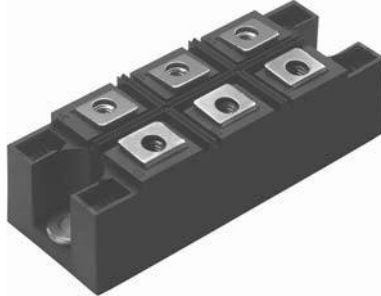



Three Phase Bridge (Power Modules), 60/70 A



MTK

FEATURES

- Package fully compatible with the industry standard INT-A-PAK power modules series
- High thermal conductivity package, electrically insulated case
- Excellent power volume ratio, outline for easy connections to power transistor and IGBT modules
- 4000 V_{RMS} isolating voltage
- UL E78996 approved 
- Totally lead (Pb)-free
- Designed and qualified for industrial level


RoHS
COMPLIANT

PRODUCT SUMMARY

I_o	60/70 A
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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	60MT.K	70MT.K	UNITS
I_o		60 (75)	70 (90)	A
	T_c	85 (61)	85 (57)	°C
I_{FSM}	50 Hz	420	480	A
	60 Hz	440	500	
I^2t	50 Hz	870	1150	kA ² s
	60 Hz	790	1050	
$I^2\sqrt{t}$		8700	11 500	kA ² √s
V_{RRM}	Range	800 to 1600		V
T_{Stg}	Range	- 40 to 150		°C
T_J				

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
60-70MT..K	80	800	900	10
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	
	160	1600	1700	

60-70MT..KPbF Series



Vishay High Power Products Three Phase Bridge
(Power Modules), 60/70 A

FORWARD CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS		60MT.K	70MT.K	UNITS	
Maximum DC output current at case temperature	I_O	120° rect. conduction angle		60 (75)	70 (90)	A	
				85 (61)	85 (57)	°C	
Maximum peak, one-cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	Initial $T_J = T_J$ maximum	420	480	A
		t = 8.3 ms					
		t = 10 ms	100 % V_{RRM} reapplied		350	400	
		t = 8.3 ms			370	420	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied	Initial $T_J = T_J$ maximum	870	1150	kA ² s
		t = 8.3 ms					
		t = 10 ms	100 % V_{RRM} reapplied		610	800	
		t = 8.3 ms			560	730	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		8700	11 300	A ² √s	
Low level value of threshold voltage	$V_{F(TO)1}$	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), T_J maximum		0.85	0.86	V	
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$), T_J maximum		1.07	1.08		
Low level value of forward slope resistance	r_{f1}	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), T_J maximum		8.04	7.35	mΩ	
High level value of forward slope resistance	r_{f2}	(I > $\pi \times I_{F(AV)}$), T_J maximum		7.08	6.53		
Maximum forward voltage drop	V_{FM}	$I_{pk} = 100$ A, $T_J = 25$ °C, $t_p = 400$ μs single junction		1.75	1.55	V	
RMS 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		60MT.K	70MT.K	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		0.37	0.29	K/W
		DC operation per junction		2.22	1.75	
		120° rect. conduction angle per module		0.40	0.34	
		120° rect. conduction angle per junction		2.42	2.01	
Maximum thermal resistance, case to heatsink per module	R_{thCS}	Mounting surface smooth, flat and greased		0.03		
Mounting torque ± 10 %	to heatsink to terminal	A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow for the spread of the compound. Lubricated threads.		4 to 6		Nm
				3 to 4		
Approximate weight						176

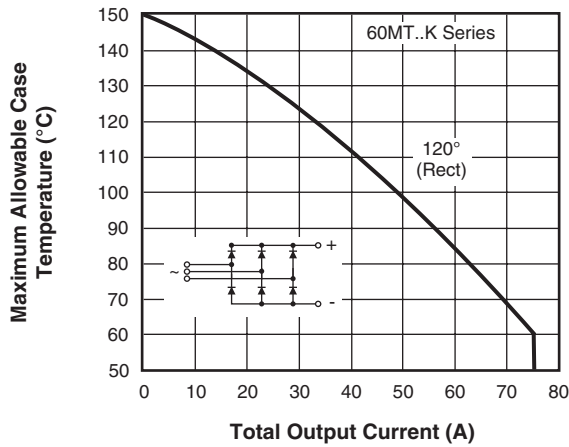


Fig. 1 - Current Ratings Characteristics

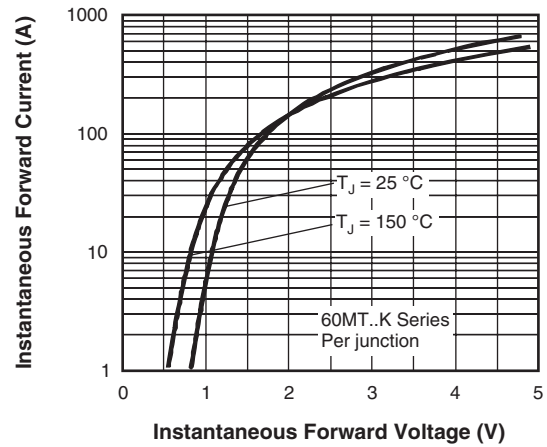


Fig. 2 - Forward Voltage Drop Characteristics

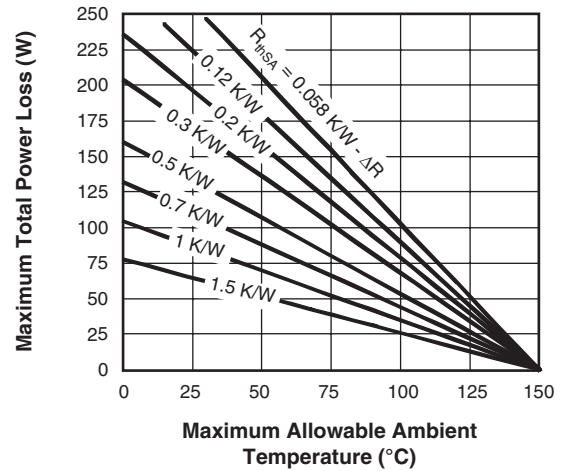
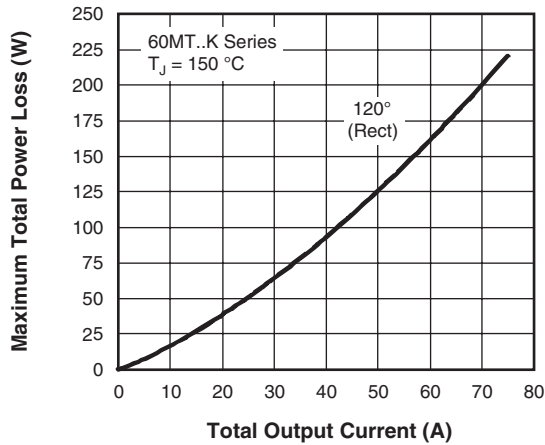


Fig. 3 - Total Power Loss Characteristics

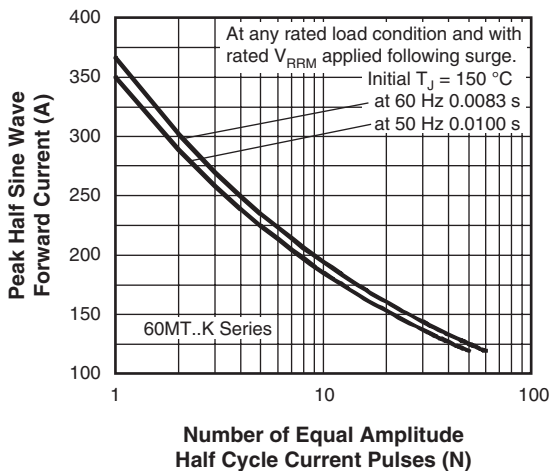


Fig. 4 - Maximum Non-Repetitive Surge Current

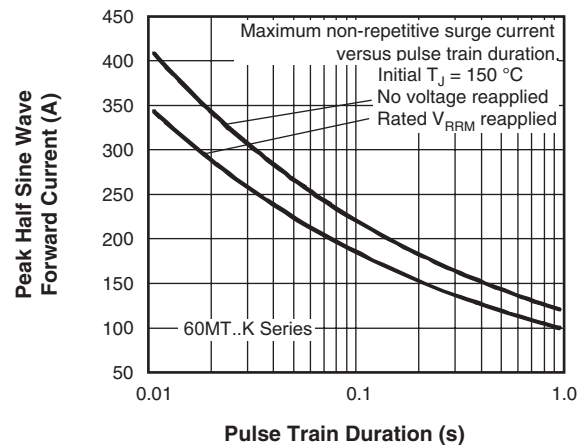


Fig. 5 - Maximum Non-Repetitive Surge Current

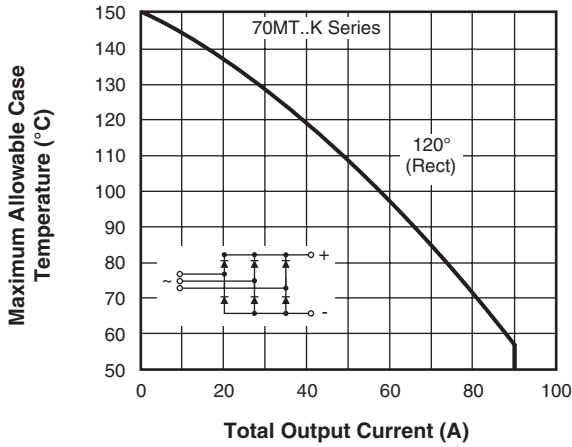


Fig. 6 - Current Ratings Characteristics

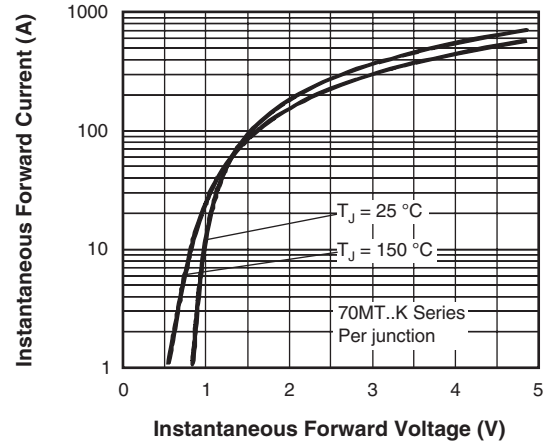


Fig. 7 - Forward Voltage Drop Characteristics

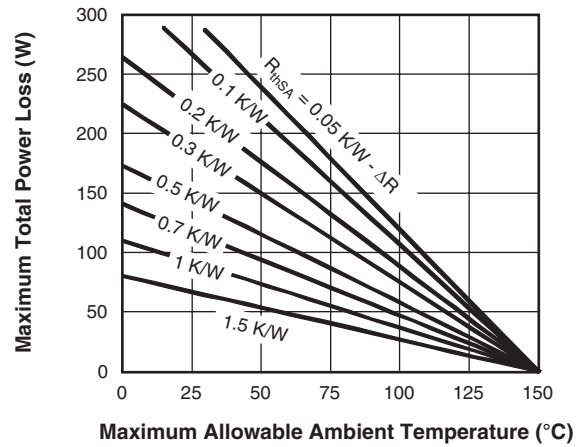
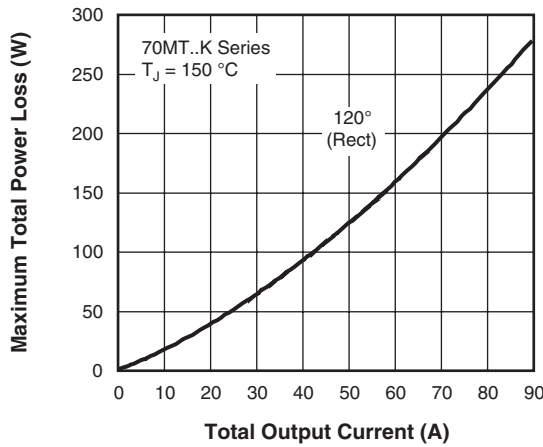


Fig. 8 - Total Power Loss Characteristics

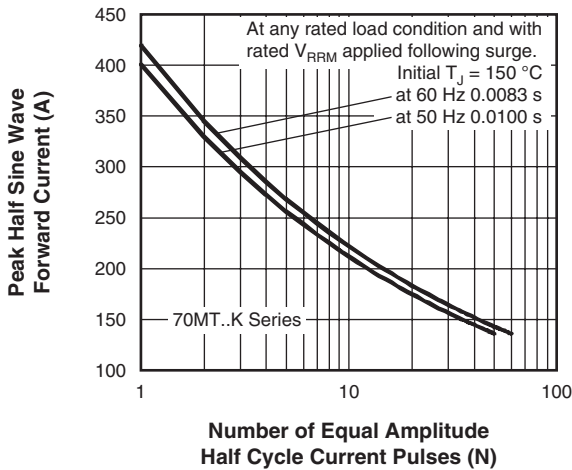


Fig. 9 - Maximum Non-Repetitive Surge Current

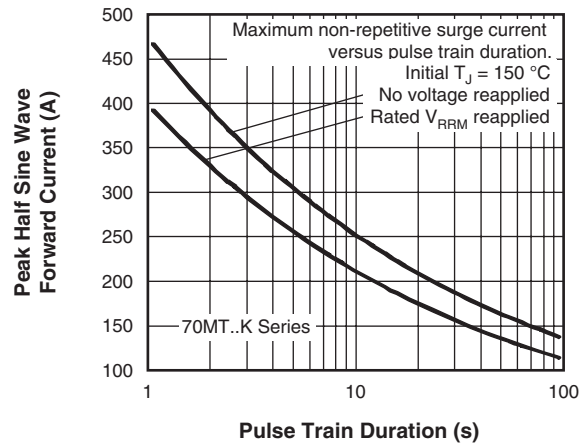


Fig. 10 - Maximum Non-Repetitive Surge Current

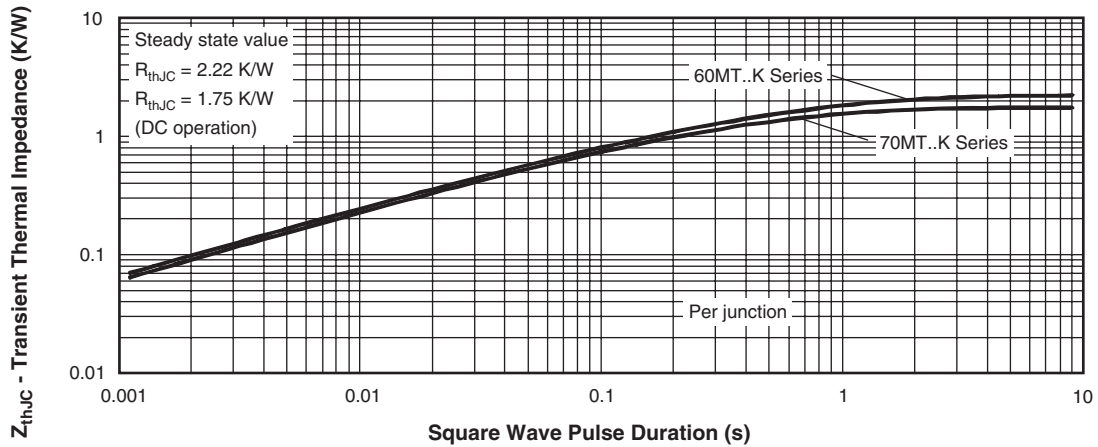


Fig. 11 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

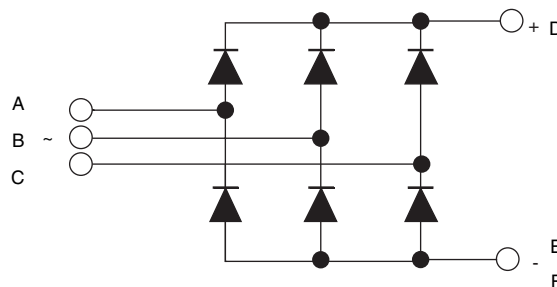
Device code	7	0	MT	160	K	PbF
	①	②	③	④	⑤	⑥
	1	2	3	4	5	

- 1** - Current rating code: 6 = 60 A (average)
7 = 70 A (average)
- 2** - Three phase diodes bridge
- 3** - Essential part number
- 4** - Voltage code x 10 = V_{RRM} (see Voltage Ratings table)
- 5** - PbF = Lead (Pb)-free

Note

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

CIRCUIT CONFIGURATION



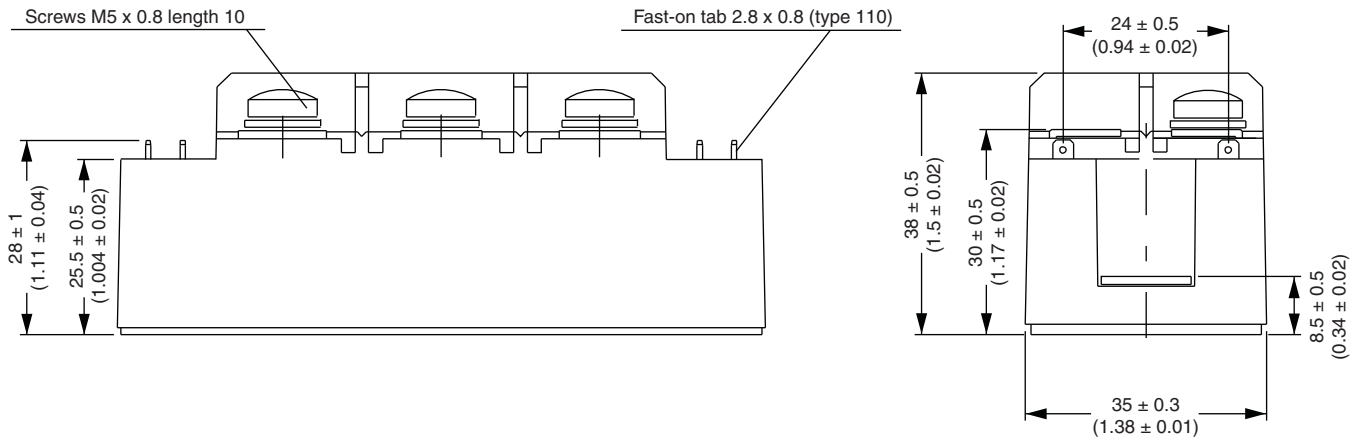
LINKS TO RELATED DOCUMENTS

Dimensions

<http://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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