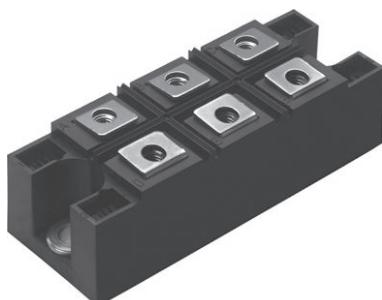


Three Phase Bridge (Power Modules), 60/70 A


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 
- Designed and qualified for industrial level
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


**RoHS
COMPLIANT**

PRODUCT SUMMARY	
I _O	60 A to 70 A
V _{RRM}	800 V to 1600 V
Package	MT-K
Circuit	Three Phase Bridge

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.

SYMBOL	CHARACTERISTICS	VALUES 60MT.K	VALUES 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 ² t	50 Hz	870	1150	kA ² s
	60 Hz	790	1050	
I ² √t		8700	11 500	kA ² √s
V _{RRM}	Range	800 to 1600		V
T _{Stg}	Range	- 40 to 150		°C
T _J		- 40 to 150		

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	

FORWARD CONDUCTION								
PARAMETER	SYMBOL	TEST CONDITIONS			VALUES 60MT.K	VALUES 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}	$t = 10 \text{ ms}$	No voltage reapplied	Initial $T_J = T_{J_{\text{max}}}$	420	480	A	
		$t = 8.3 \text{ ms}$			440	500		
		$t = 10 \text{ ms}$	100 % V_{RRM} reapplied		350	400		
		$t = 8.3 \text{ ms}$			370	420		
Maximum I^2t for fusing	I^2t	$t = 10 \text{ ms}$	No voltage reapplied	Initial $T_J = T_{J_{\text{max}}}$	870	1150	kA^2s	
		$t = 8.3 \text{ ms}$			790	1050		
		$t = 10 \text{ ms}$	100 % V_{RRM} reapplied		610	800		
		$t = 8.3 \text{ ms}$			560	730		
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1 \text{ to } 10 \text{ ms}$, no voltage reapplied			8700	11 300	$\text{A}^2\sqrt{\text{s}}$	
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	$\text{m}\Omega$	
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}	$I_{pk} = 100 \text{ A}$, $T_J = 25 \text{ }^{\circ}\text{C}$, $t_p = 400 \mu\text{s}$ single junction			1.75	1.55	V	
RMS isolation voltage	V_{ISOL}	$T_J = 25 \text{ }^{\circ}\text{C}$, all terminal shorted $f = 50 \text{ Hz}$, $t = 1 \text{ s}$			4000			

THERMAL AND MECHANICAL SPECIFICATIONS							
PARAMETER	SYMBOL	TEST CONDITIONS			VALUES 60MT.K	VALUES 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 $\pm 10 \%$	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		g

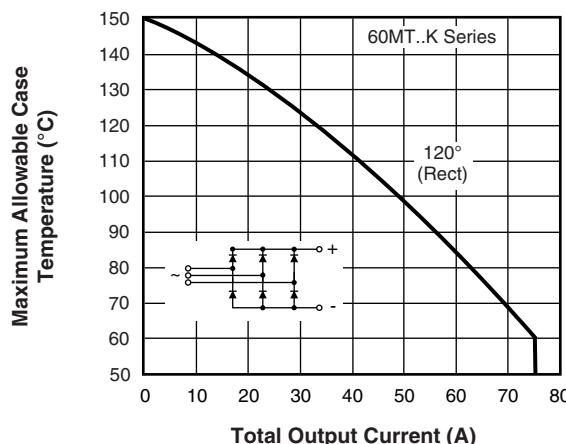


Fig. 1 - Current Ratings Characteristics

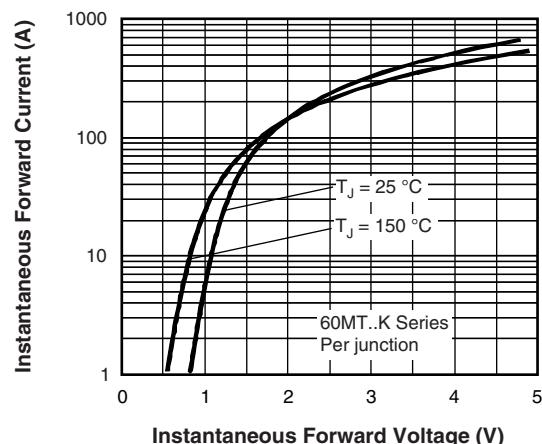


Fig. 2 - Forward Voltage Drop Characteristics

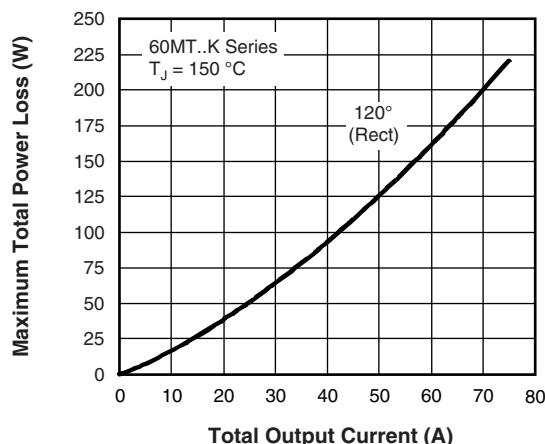


Fig. 3 - Total Power Loss Characteristics

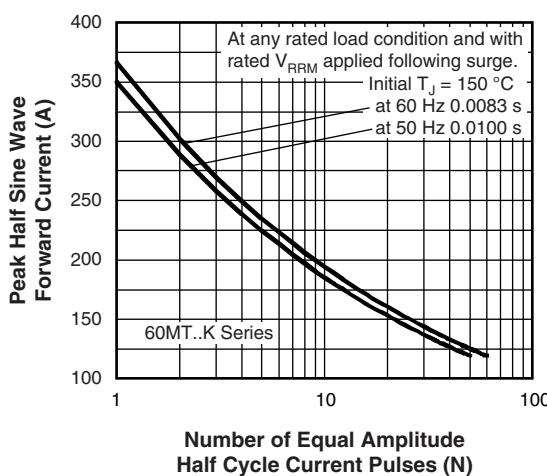
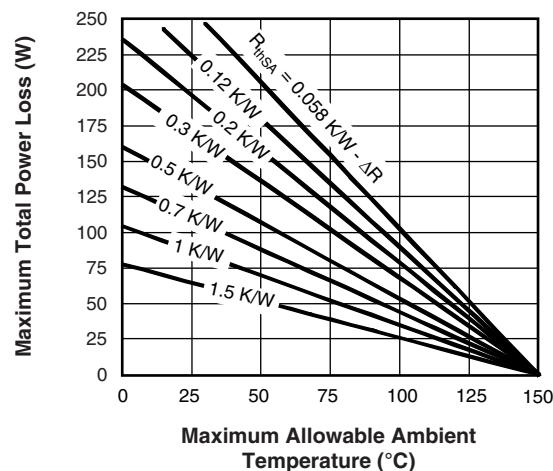


Fig. 4 - Maximum Non-Repetitive Surge Current

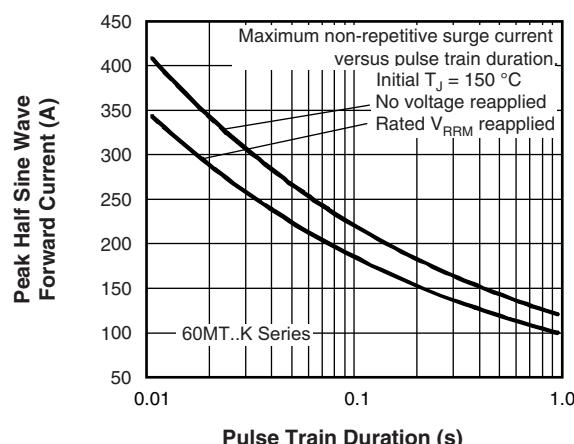


Fig. 5 - Maximum Non-Repetitive Surge Current

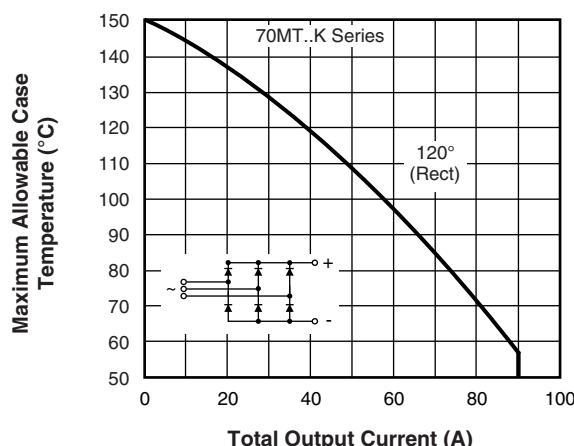


Fig. 6 - Current Ratings Characteristics

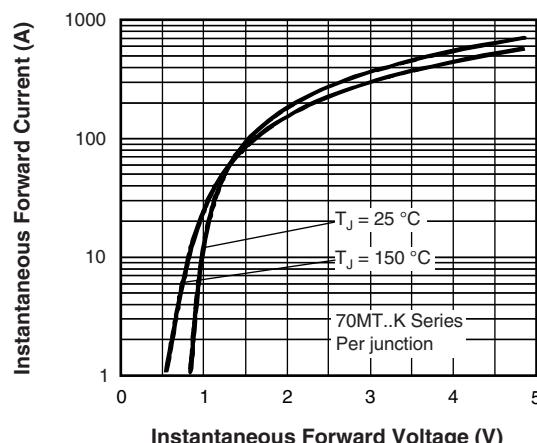


Fig. 7 - Forward Voltage Drop Characteristics

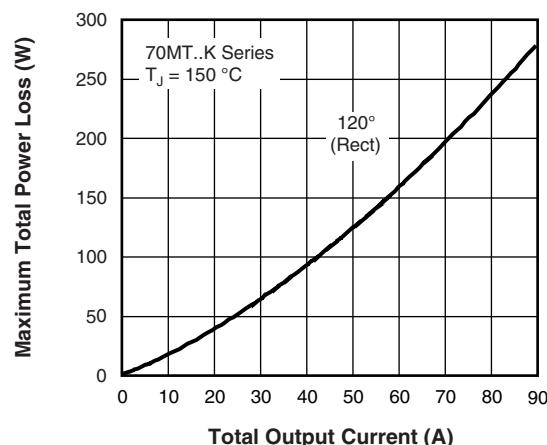
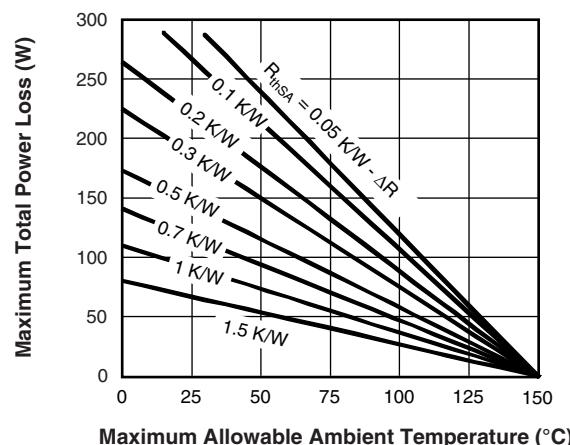


Fig. 8 - Total Power Loss Characteristics



Maximum Total Power Loss (W)

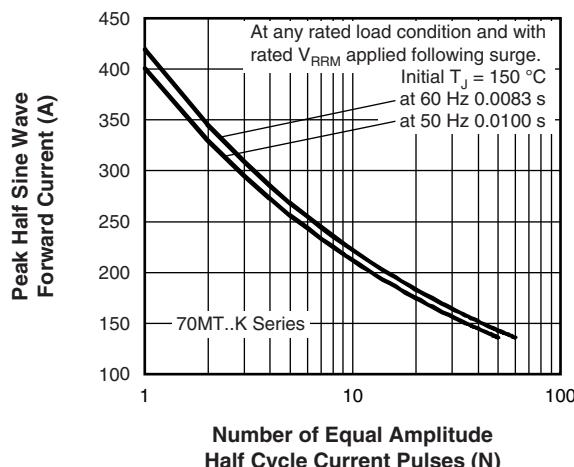


Fig. 9 - Maximum Non-Repetitive Surge Current

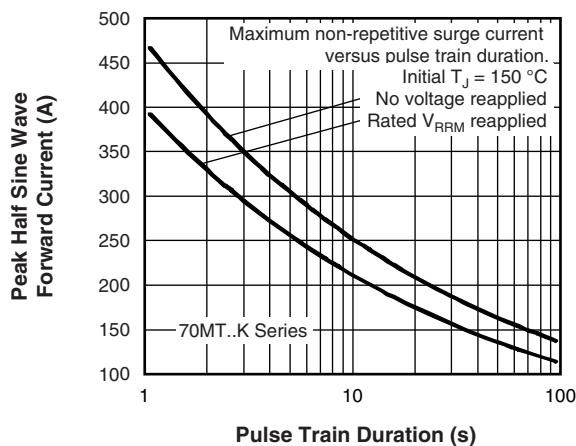


Fig. 10 - Maximum Non-Repetitive Surge Current

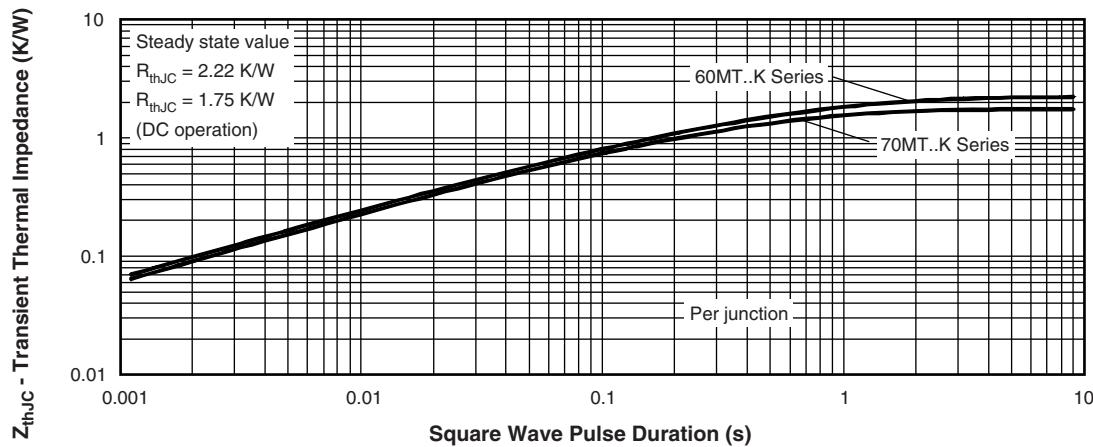


Fig. 1 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

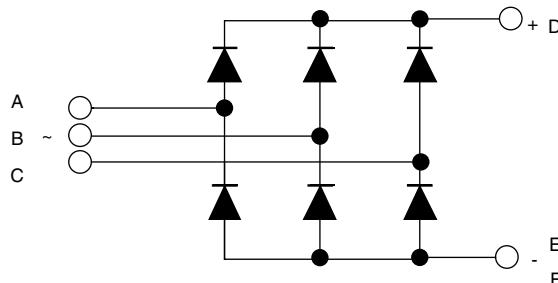
Device code	7	0	MT	160	K	PbF
	1	2	3	4	5	6

- 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

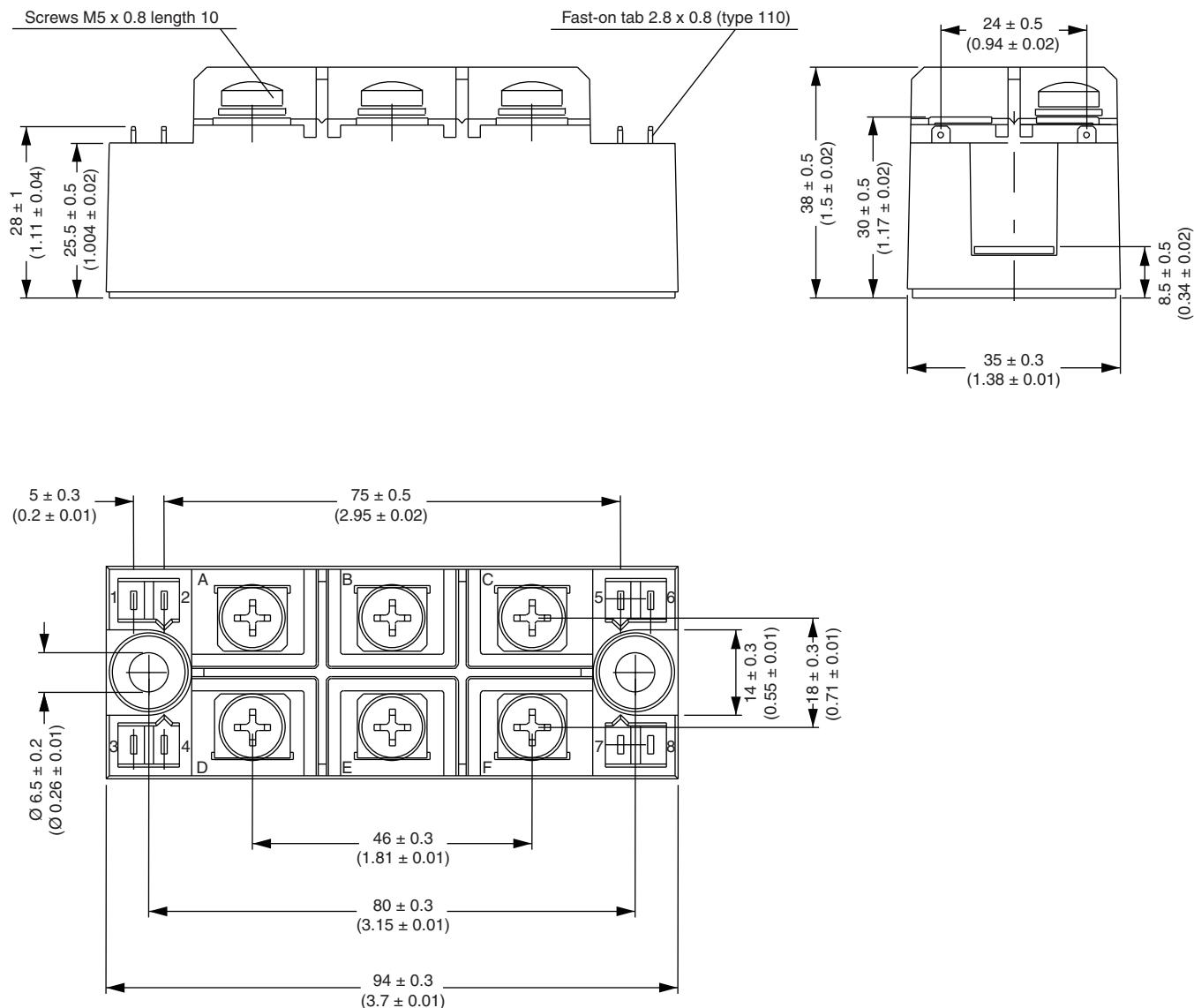


LINKS TO RELATED DOCUMENTS

Dimensions	www.vishay.com/doc?95004
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MTK (with and without optional barrier)

DIMENSIONS WITH OPTIONAL BARRIERS in millimeters (inches)

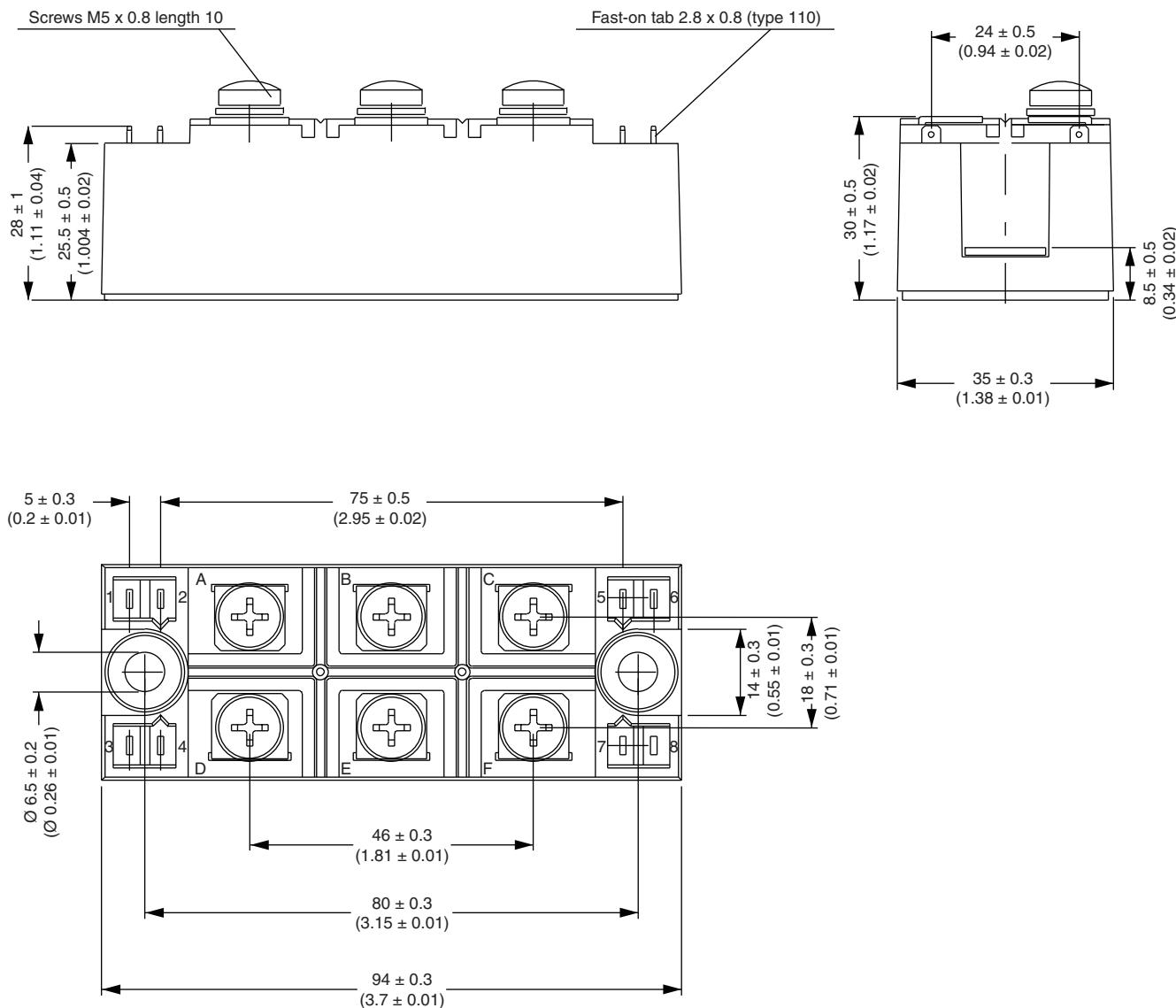


Outline Dimensions

Vishay Semiconductors MTK (with and without optional barrier)



DIMENSIONS WITHOUT OPTIONAL BARRIERS in millimeters (inches)



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