


THREE PHASE BRIDGE

Power Modules

Features

- Package fully compatible with the industry standard INT-A-pak power modules series
- High thermal conductivity package, electrically insulated case
- Outstanding number of power encapsulated components
- Excellent power volume ratio, outline for easy connections to power transistor and IGBT modules
- 4000 V_{RMS} isolating voltage
- UL E78996 approved 

130 A
160 A

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

Parameters	130MT.KB	160MT.KB	Units
I_O	130(160)	160(200)	A
@ T_C	85(62)	85(60)	°C
I_{FSM}	1130	1430	A
@ 50Hz	1180	1500	A
@ 60Hz	6400	10200	A ² s
I^2t	5800	9300	A ² s
@ 50Hz	64000	102000	A ² √s
@ 60Hz			
$I^2\sqrt{t}$			
V_{RRM} range	800 to 1600		V
T_{STG} range	-40 to 150		°C
T_J range	-40 to 150		°C

130-160MT..KB Series

Bulletin I27502 08/97

International
IR Rectifier

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ T_J max. mA
130-160MT..KB	80	800	900	10
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	
	160	1600	1700	

Forward Conduction

Parameter	130MT.KB	160MT.KB	Units	Conditions
I_O Maximum DC output current @ Case temperature	130 (160)	160 (200)	A	120° Rect conduction angle
	85 (62)	85 (60)	°C	
I_{FSM} Maximum peak, one-cycle forward, non-repetitive surge current	1130	1430	A	t = 10ms No voltage
	1180	1500		t = 8.3ms reapplied
	950	1200		t = 10ms 100% V_{RRM}
	1000	1260		t = 8.3ms reapplied
I^2t Maximum I^2t for fusing	64000	10200	A ² s	t = 10ms No voltage
	5800	9300		t = 8.3ms reapplied
	4500	7200		t = 10ms 100% V_{RRM}
	4100	6600		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	64000	102000	A ² √s	t = 0.1 to 10ms, no voltage reapplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.78	0.81	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ T_J max.
$V_{F(TO)2}$ High level value of threshold voltage	0.99	1.04	V	$(I > \pi \times I_{F(AV)})$, @ T_J max.
r_{f1} Low level value of forward slope resistance	4.59	3.52	mΩ	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ T_J max.
r_{f2} High level value of forward slope resistance	4.17	3.13	mΩ	$(I > \pi \times I_{F(AV)})$, @ T_J max.
V_{FM} Maximum forward voltage drop	1.63	1.49	V	$I_{pk} = 200A$, $T_J = 25^\circ C$, $t_p = 400\mu s$ single junction
V_{INS} RMS isolation voltage	4000	4000	V	$T_J = 25^\circ C$, all terminal shorted f = 50Hz, t = 1s

Thermal and Mechanical Specifications

Parameter	130MT.KB	160MT.KB	Units	Conditions
T_J Max. junction operating temperature range	-40 to 150		°C	
T_{stg} Max. storage temperature range	-40 to 150		°C	
R_{thJC} Max. thermal resistance, junction to case	0.16	0.12	K/W	DC operation per module
	0.93	0.73		DC operation per junction
	0.18	0.15		120° Rect conduction angle per module
	1.08	0.88		120° Rect conduction angle per junction
R_{thCS} Max. thermal resistance, case to heatsink	0.03		K/W	Per module Mounting surface smooth, flat and greased
T Mounting torque $\pm 10\%$ to heatsink to terminal	4 to 6		Nm	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.
	3 to 4			
wt Approximate weight	225		g	

130-160MT..KB Series

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Outline Table (with optional barriers)

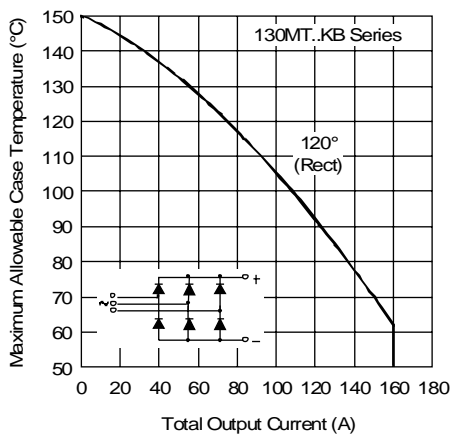
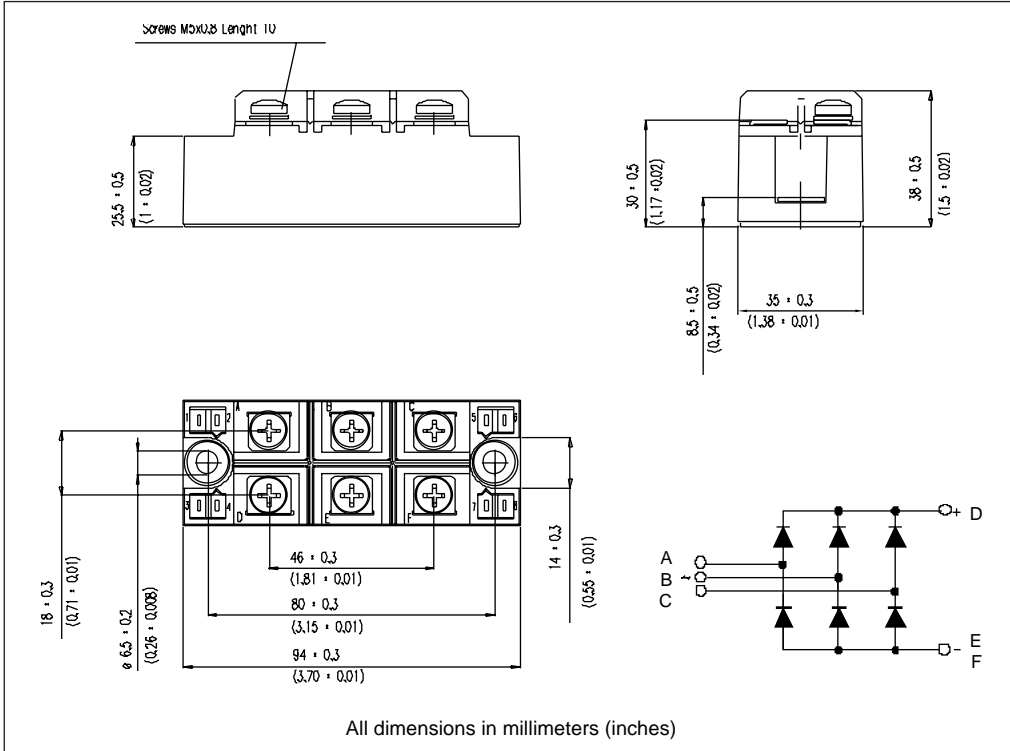


Fig. 1 - Current Ratings Characteristics

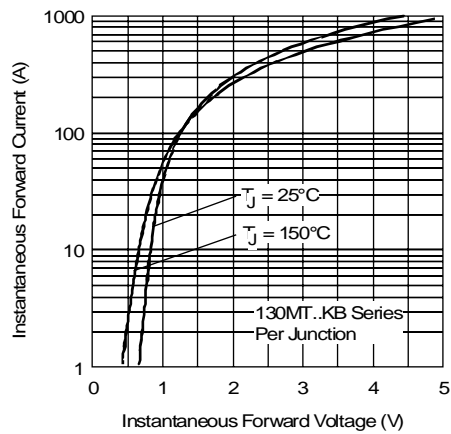


Fig. 2 - Forward Voltage Drop Characteristics

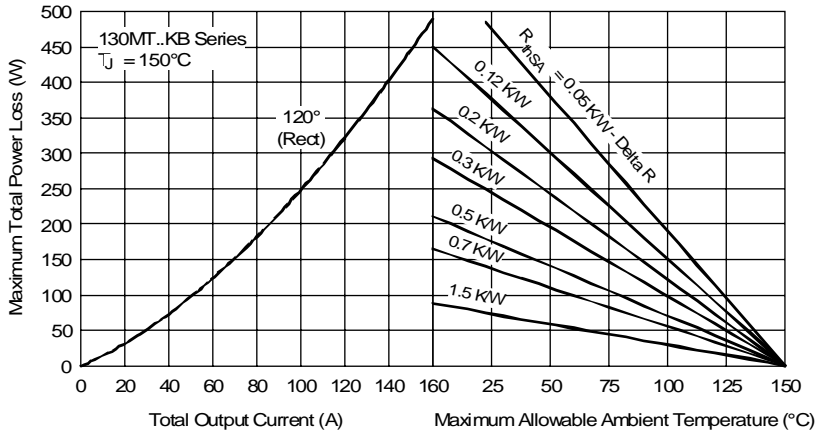


Fig. 3 - Total Power Loss Characteristics

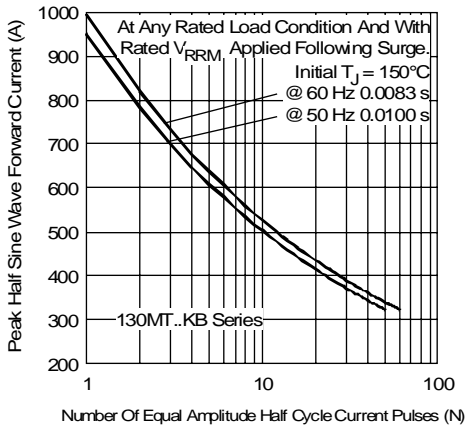


Fig. 4 - Maximum Non-Repetitive Surge Current

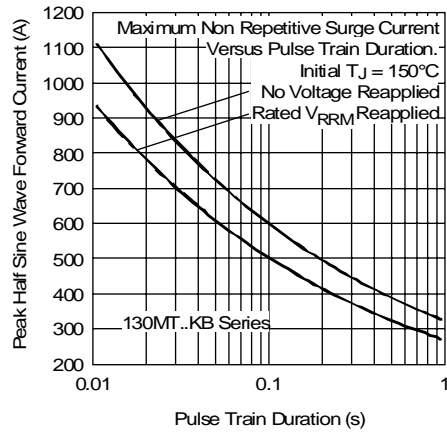


Fig. 5 - Maximum Non-Repetitive Surge Current

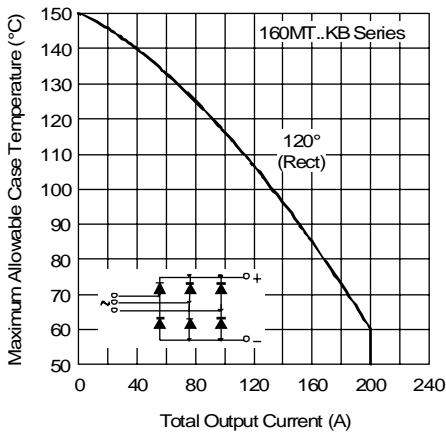


Fig. 6 - Current Ratings Characteristics

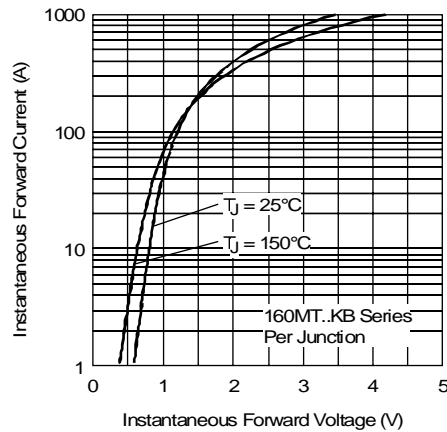


Fig. 7 - Forward Voltage Drop Characteristics

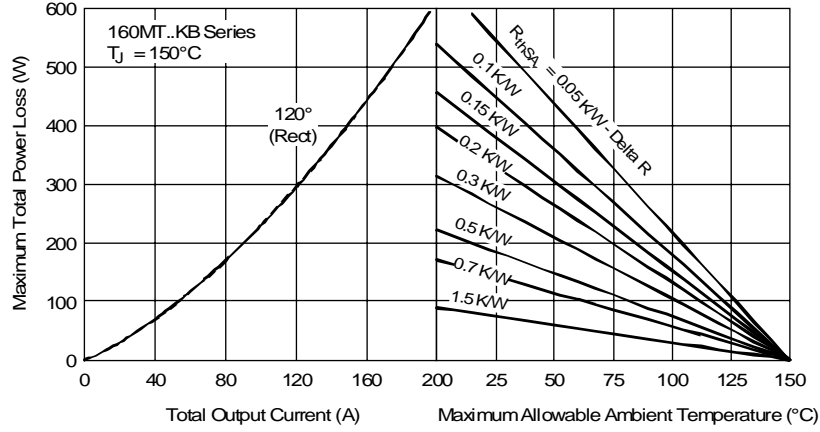


Fig. 8 - Total Power Loss Characteristics

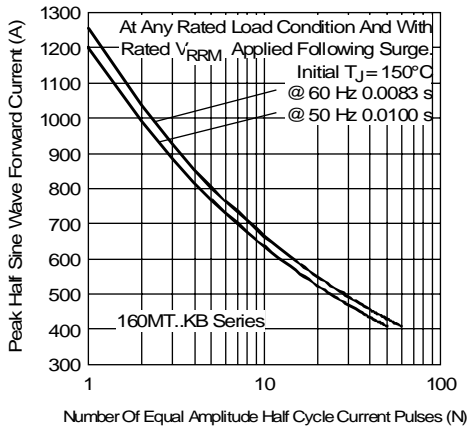


Fig. 9 - Maximum Non-Repetitive Surge Current

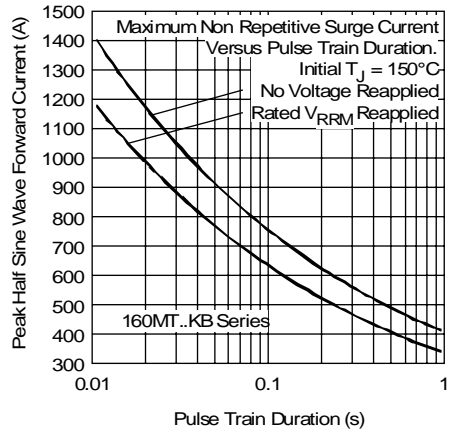


Fig. 10 - Maximum Non-Repetitive Surge Current

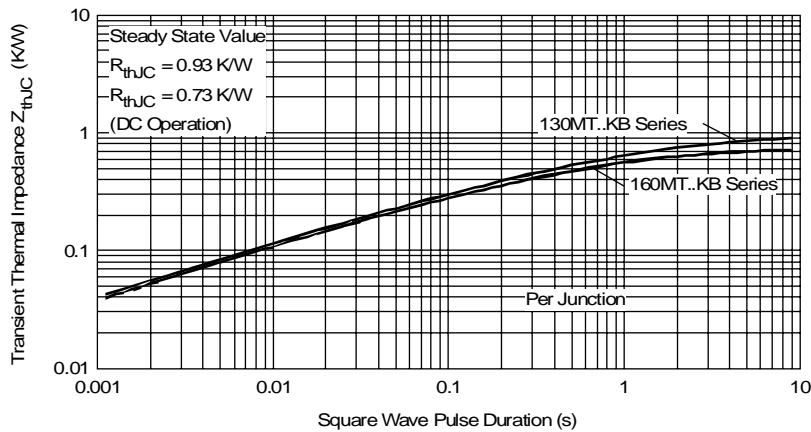


Fig. 11 - Thermal Impedance Z_{thJC} Characteristic