


International  
**IOR** Rectifier

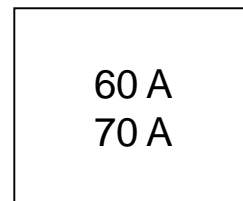
## MT..KB SERIES

### 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<sub>RMS</sub> isolating voltage
- UL E78996 approved 



#### 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	60MT.KB	70MT.KB	Units
$I_o$	60 (75)	70 (90)	A
@ $T_c$	85 (61)	85 (57)	°C
$I_{FSM}$			
@ 50Hz	420	480	A
@ 60Hz	440	500	A
$I^2t$			
@ 50Hz	870	1150	A <sup>2</sup> s
@ 60Hz	790	1050	A <sup>2</sup> s
$I^2\sqrt{t}$	8700	11500	A <sup>2</sup> √s
$V_{RRM}$ range	800 to 1600		V
$T_{STG}$ range	- 40 to 150		°C
$T_J$ range	- 40 to 150		°C

## 60-70MT..KB Series

Bulletin I27500 rev. A 05/03

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

#### Forward Conduction

Parameter	60MT.KB	70MT.KB	Units	Conditions
$I_O$ Maximum DC output current @ Case temperature	60 (75)	70 (90)	A	120° Rect conduction angle
	85 (61)	85 (57)	°C	
$I_{FSM}$ Maximum peak, one-cycle forward, non-repetitive surge current	420	480	A	t = 10ms No voltage
	440	500		t = 8.3ms reapplied
	350	400		t = 10ms 100% $V_{RRM}$
	370	420		t = 8.3ms reapplied
$I^2t$ Maximum $I^2t$ for fusing	870	1150	A <sup>2</sup> s	t = 10ms No voltage
	790	1050		t = 8.3ms reapplied
	610	800		t = 10ms 100% $V_{RRM}$
	560	730		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	8700	11300	A <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reapplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.85	0.86	V	(16.7% x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), @ $T_J$ max.
$V_{F(TO)2}$ High level value of threshold voltage	1.07	1.08	V	( $I > \pi$ x $I_{F(AV)}$ ), @ $T_J$ max.
$r_{f1}$ Low level value of forward slope resistance	8.04	7.35	mΩ	(16.7% x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), @ $T_J$ max.
$r_{f2}$ High level value of forward slope resistance	7.08	6.53	mΩ	( $I > \pi$ x $I_{F(AV)}$ ), @ $T_J$ max.
$V_{FM}$ Maximum forward voltage drop	1.75	1.55	V	$I_{pk} = 100A$ , $T_J = 25^\circ C$ , $t_p = 400\mu s$ 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	60MT.KC	70MT.KC	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	0.37	0.29	K/W	DC operation per module
	2.22	1.75		DC operation per junction
	0.40	0.34		120° Rect conduction angle per module
	2.42	2.01		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	176		g	

Ordering Information Table

<b>Device Code</b>				
<b>7</b>	<b>0</b>	<b>MT</b>	<b>160</b>	<b>K B</b>
①	②	③	④	⑤

**1** - Current rating code: 6 = 60 A Avg.  
7 = 70 A Avg.

**2** - Three phase diodes bridge

**3** - Essential part number

**4** - Voltage code: Code x 10 =  $V_{RRM}$  (See Voltage Ratings Table)

**5** - Generation II

Outline Table (without optional barriers)

Screws M5 x 0.8 Length 10

All dimensions in millimeters (inches)

**NOTE: To order the Optional Hardware see Bulletin I27900**

# 60-70MT..KB Series

Bulletin I27500 rev. A 05/03



## Outline Table (with optional barriers)

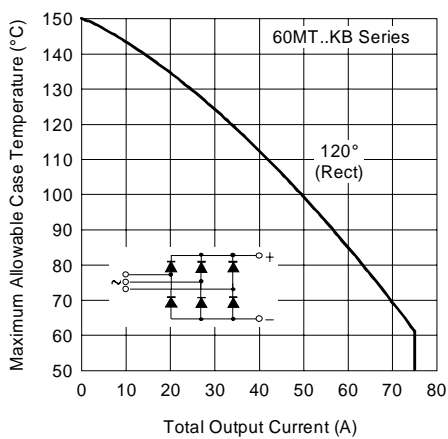
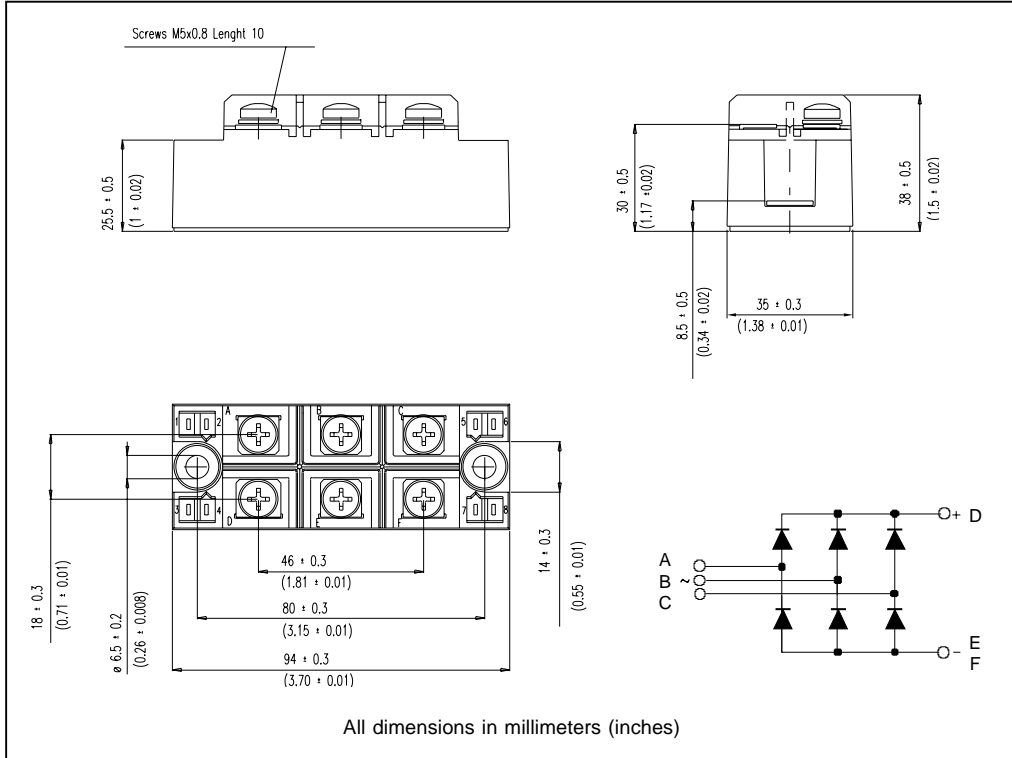


Fig. 1 - Current Ratings Characteristics

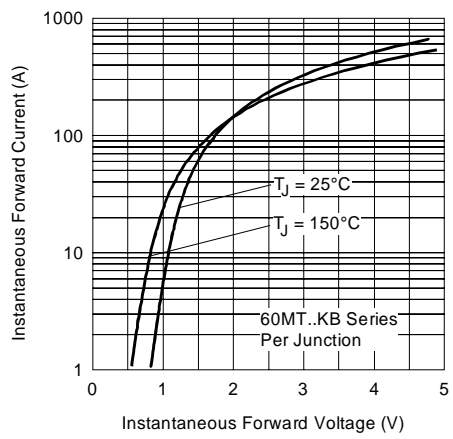


Fig. 2 - Forward Voltage Drop Characteristics

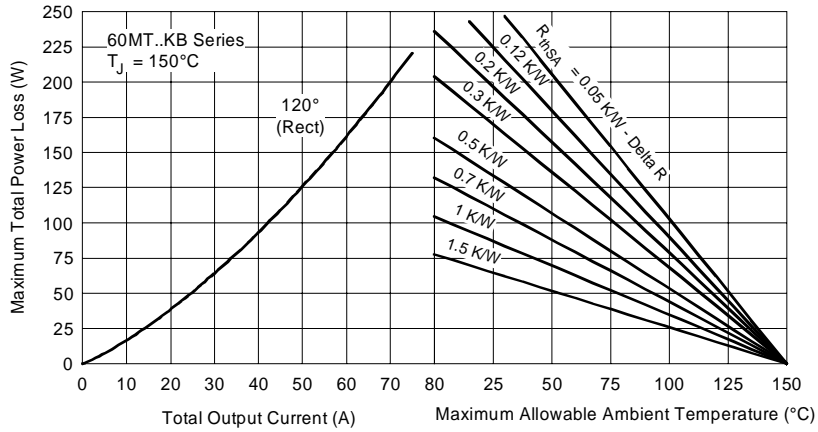


Fig. 3 - Total Power Loss Characteristics

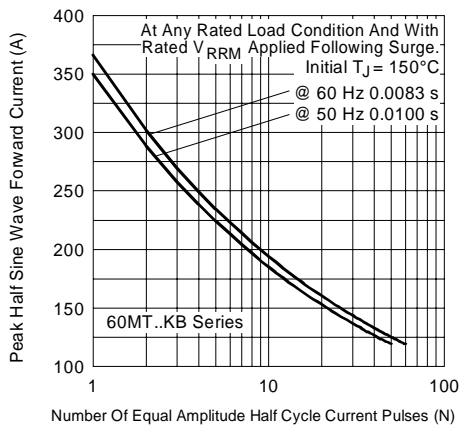


Fig. 4 - Maximum Non-Repetitive Surge Current

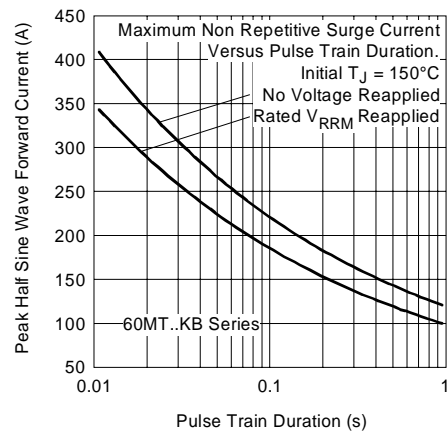


Fig. 5 - Maximum Non-Repetitive Surge Current

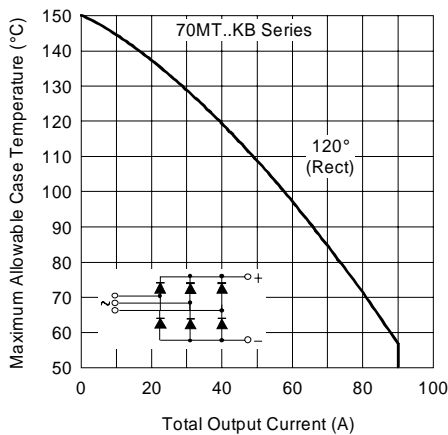


Fig. 6 - Current Ratings Characteristics

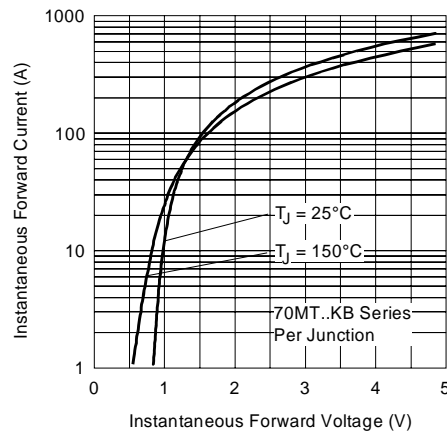


Fig. 7 - Forward Voltage Drop Characteristics

**60-70MT..KB Series**

Bulletin 127500 rev. A 05/03

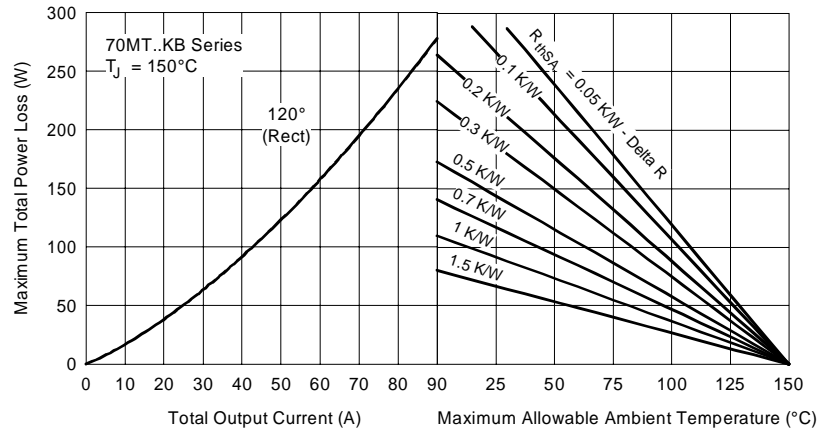


Fig. 8 - Total Power Loss Characteristics

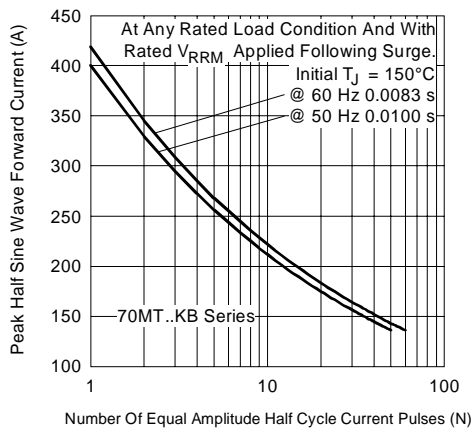


Fig. 9 - Maximum Non-Repetitive Surge Current

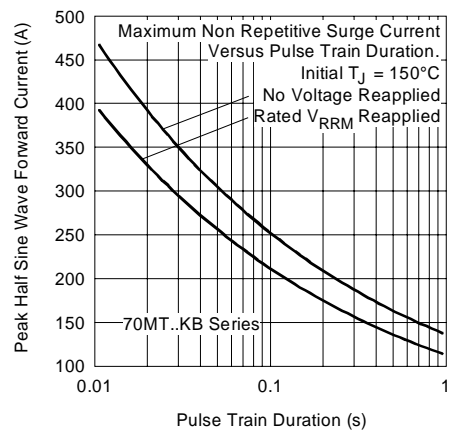


Fig. 10 - Maximum Non-Repetitive Surge Current

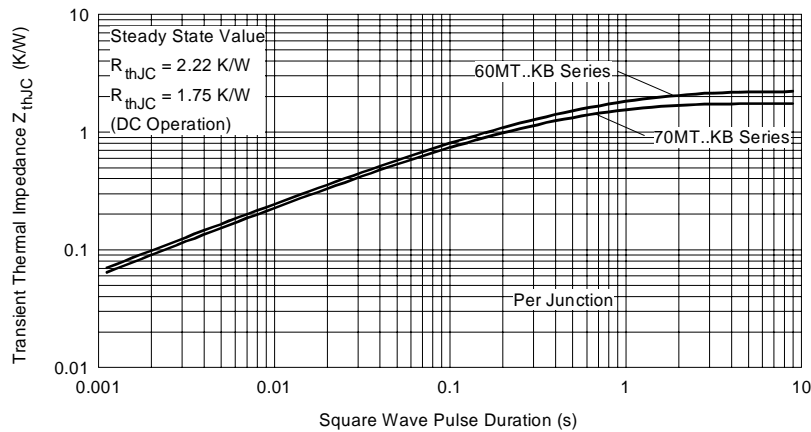


Fig. 11 - Thermal Impedance  $Z_{thJC}$  Characteristic

Data and specifications subject to change without notice.  
This product has been designed and qualified for Industrial Level.  
Qualification Standards can be found on IR's Web site.

International  
**IOR** Rectifier

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05/03



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