


### THREE PHASE BRIDGE

### Power Module

#### 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<sub>RMS</sub> isolating voltage
- ULE78996 approved 
- TOTALLY LEAD-FREE

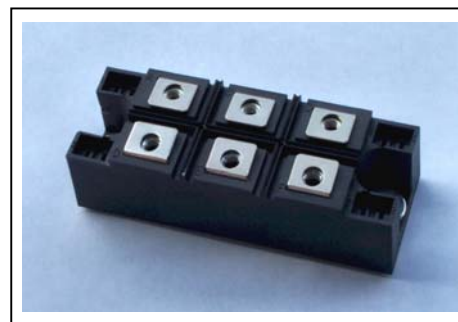
200 A

#### 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

Parameters	Values	Units
$I_O$	200	A
@ $T_C$	85	°C
$I_{FSM}$ @ 50Hz	1800	A
@ 60Hz	1880	
$I^2t$ @ 50Hz	16.2	KA <sup>2</sup> s
@ 60Hz	14.7	
$I^2\sqrt{t}$	162	KA <sup>2</sup> √s
$V_{RRM}$	400	V
$T_{STG}$ range	-40 to 150	°C
$T_J$ range	-40 to 150	



**ELECTRICAL SPECIFICATIONS**

Voltage Ratings

Type number	$V_{RRM}$ , maximum repetitive peak reverse voltage V	$V_{RSM}$ , maximum non-repetitive peak reverse voltage V	$I_{RRM}$ max. @ $T_J = 150^\circ\text{C}$ mA
200MT40KPbF	400	500	6

Forward Conduction

Parameter	200MT40KPbF	Units	Conditions
$I_O$ Maximum RMS output current @ Case temperature	200	A	120° Rect conduction angle
	85	°C	
$I_{TSM}$ Maximum peak, one-cycle forward, non-repetitive on state surge current	1800	A	t = 10ms No voltage
	1880		t = 8.3ms reapplied
	1520		t = 10ms 100% $V_{RRM}$
	1590		t = 8.3ms reapplied
$I^2t$ Maximum $I^2t$ for fusing	16.2	KA <sup>2</sup> s	t = 10ms No voltage
	14.7		t = 8.3ms reapplied
	11.6		t = 10ms 100% $V_{RRM}$
	12.6		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	162	KA <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reapplied
$V_{F(TO)}$ Value of threshold voltage	0.76	V	@ $T_J$ max.
$r_f$ Slope resistance	2.4	mΩ	
$V_{FM}$ Maximum forward voltage drop	1.40	V	$I_{pk} = 200\text{A}$ , $T_J = 25^\circ\text{C}$ , $t_p = 400\mu\text{s}$ single junction
$V_{INS}$ Insulation voltage	4000	V	$T_J = 25^\circ\text{C}$ all terminal shorted, f = 50Hz, t = 1s

Thermal and Mechanical Specifications

Parameter	200MT40KPbF	Units	Conditions
$T_J$ Maximum junction operating temperature range	- 40 to 150	°C	
$T_{stg}$ Maximum storage temperature range	-40 to 150	°C	
$R_{thJC}$ Maximum thermal resistance, junction to case	0.12	K/W	DC operation per module
	0.69		DC operation per junction
	0.14		120° Rect conduction angle per module
	0.82		120° Rect conduction angle per junction
$R_{thCS}$ Maximum thermal resistance, case to heatsink	0.033	K/W	Per module. Mounting surface smooth, flat and greased. Heatsink compound thermal conductivity = 0.42W/mK
T Mounting torque ± 10% to heatsink	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.
wt Approximate weight	176	g	Lubricated threads.

Ordering Information Table

Device Code					
<b>20</b>	<b>0</b>	<b>MT</b>	<b>40</b>	<b>K</b>	<b>PbF</b>
1	2	3	4	5	

- 1** - Current rating code: 20 = 200 A (Avg)
- 2** - Three phase diodes bridge
- 3** - Essential part number
- 4** - Voltage code: Code x 10 =  $V_{RRM}$  (40 = 400V)
- 5** - PbF = Lead-Free

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**

Outline Table (with optional barriers)

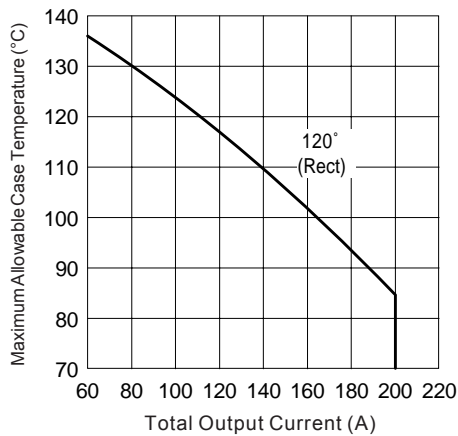
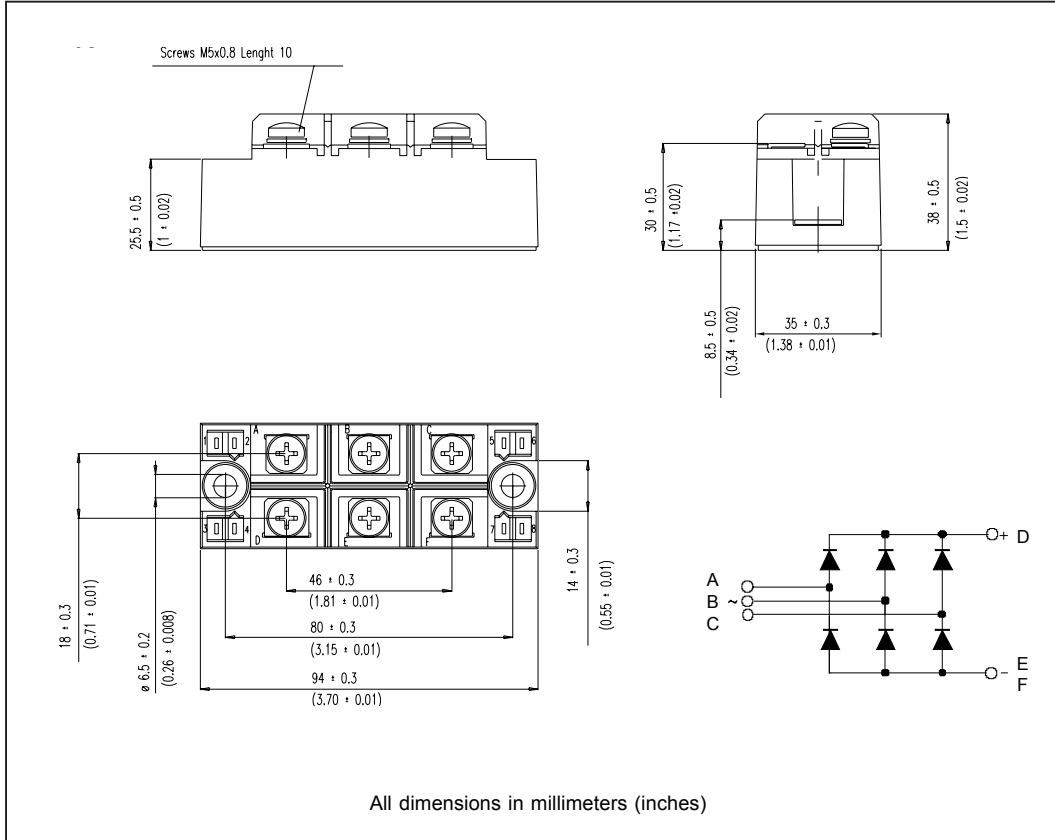


Fig. 1 - Current Rating Characteristics

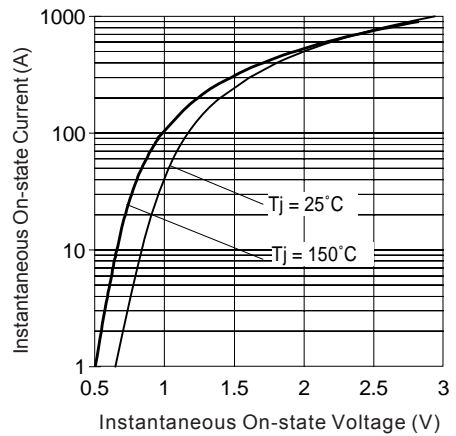


Fig. 2 - On-state Voltage Drop Characteristics

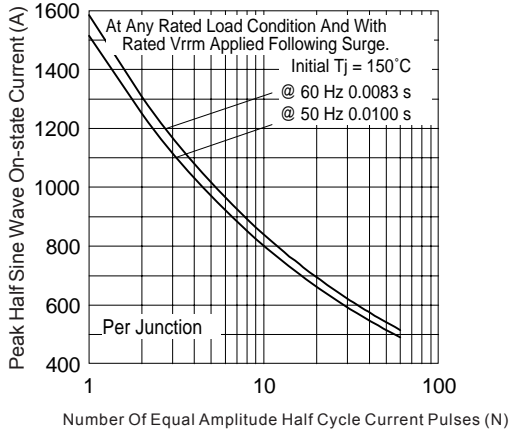


Fig. 3 - Maximum Non-Repetitive Surge Current

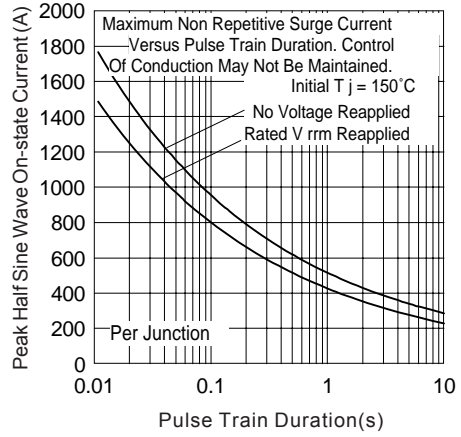


Fig. 4 - Maximum Non-Repetitive Surge Current

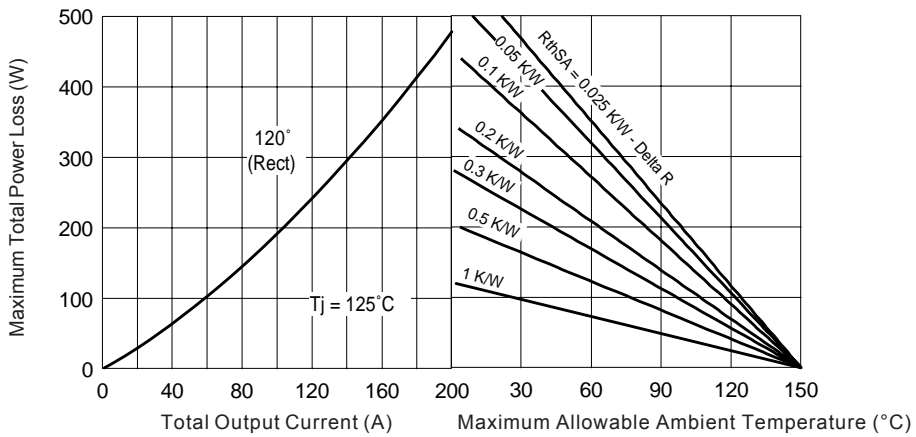


Fig. 5 - Current Rating Nomogram (1 Module Per Heatsink)

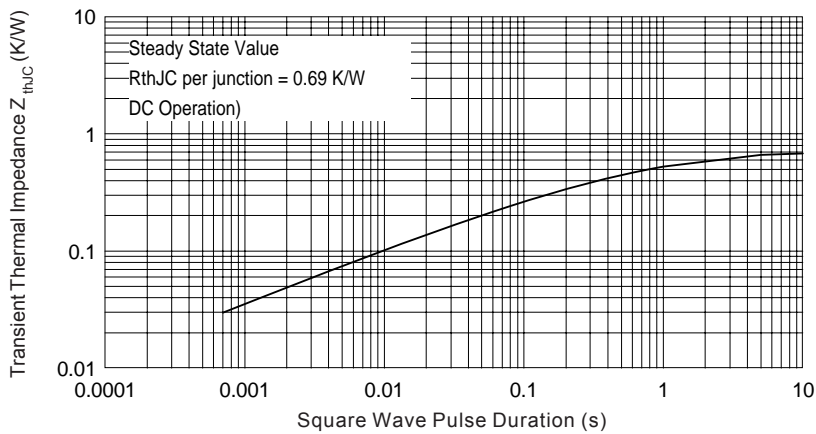


Fig. 6 - Thermal Impedance  $Z_{thJC}$  Characteristics

## **200MT40KPbF**

Bulletin 127220 03/06

International  
**IOR** Rectifier

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

International  
**IOR** Rectifier

**IR WORLD HEADQUARTERS:** 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105  
TAC Fax: (310) 252-7309  
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