Bulletin I27129 rev. C 05/03

International
IOR Rectifier

200MT40KB

THREE PHASE BRIDGE

Power Module

200 A

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_{RMS} isolating voltage
- UL E78996 approved

Description

It extents 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		200MT40KB	Units
I_O		200	A
	@ T_C	85	°C
I_{FSM}	@ 50Hz	1800	A
	@ 60Hz	1880	
I^2t	@ 50Hz	16.2	KA^2s
	@ 60Hz	14.7	
$I^2\sqrt{t}$		162	$KA^2\sqrt{s}$
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°C mA
200MT40KB	400	500	6

Forward Conduction

	Parameter	200MT40KB	Units	Conditions		
I_O	Maximum RMS output current	200	A	120° Rect conduction angle		
	@ Case temperature	85	°C			
I_{TSM}	Maximum peak, one-cycle	1800	A	t = 10ms	No voltage	
	forward, non-repetitive	1880		t = 8.3ms	reapplied	
	on state surge current	1520		t = 10ms	100% V_{RRM}	
		1590		t = 8.3ms	reapplied	Initial $T_J = T_J$ max.
I^2t	Maximum I^2t for fusing	16.2	KA^2s	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	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)}$	Value of threshold voltage	0.76	V	@ T_J max.		
r_t	Slope resistance	2.4	mΩ			
V_{FM}	Maximum forward voltage drop	1.40	V	I_{pk} = 200A, T_J = 25°C, t_p = 400µs single junction		
V_{INS}	Insulation voltage	4000	V	T_J = 25°C all terminal shorted, f = 50Hz, t = 1s		

Thermal and Mechanical Specifications

	Parameter	200MT40KB	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,	0.12	K/W	DC operation per module
	junction to case	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. Lubricated threads.
wt	Approximate weight	176	g	

Ordering Information Table

Device Code

20	0	MT	40	K	B
1	2	3	4		5

1 - Current rating code: 20 = 200 A (Avg)

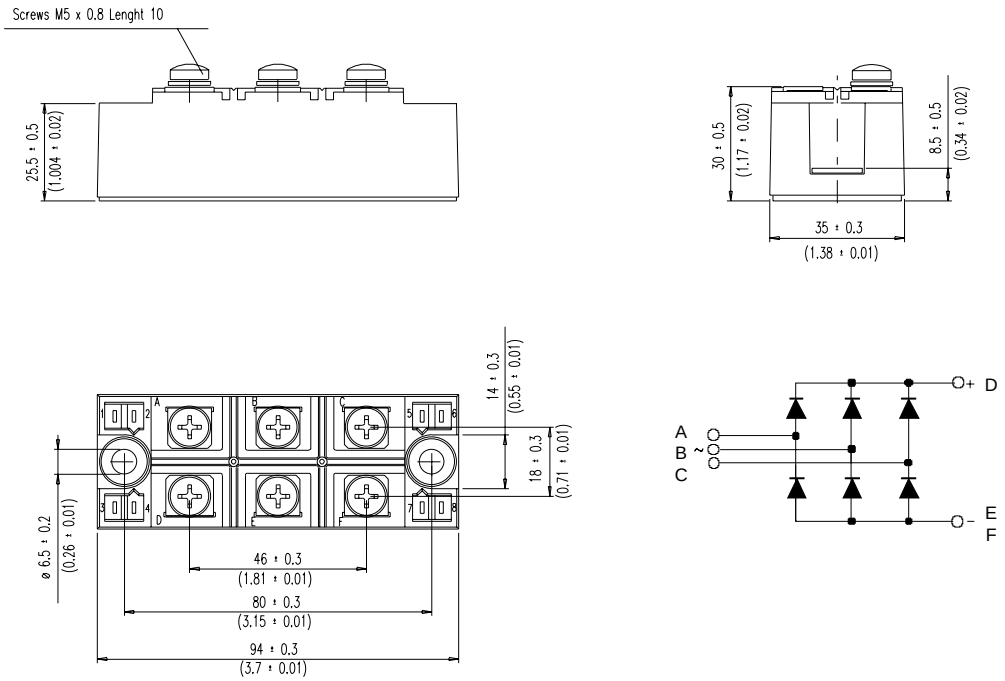
2 - Three phase diodes bridge

3 - Essential part number

4 - Voltage code: Code x 10 = V_{RRM} (40 = 400V)

5 - Generation II

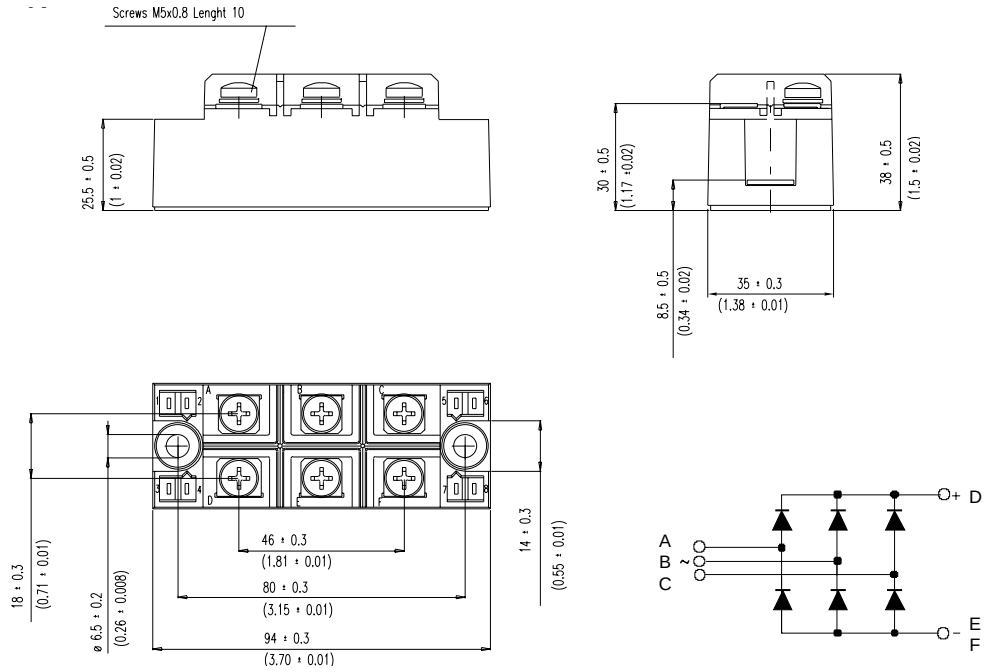
Outline Table (without optional barriers)



All dimensions in millimeters (inches)

NOTE: To order the Optional Hardware see Bulletin I27900

Outline Table (with optional barriers)



All dimensions in millimeters (inches)

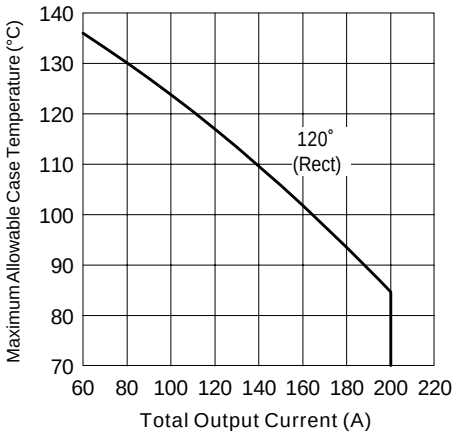


Fig. 1 - Current Rating Characteristics

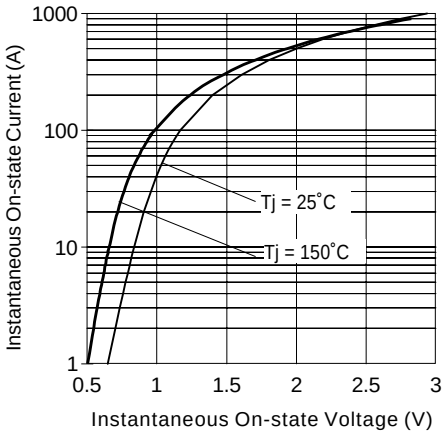


Fig. 2 - On-state Voltage Drop Characteristics

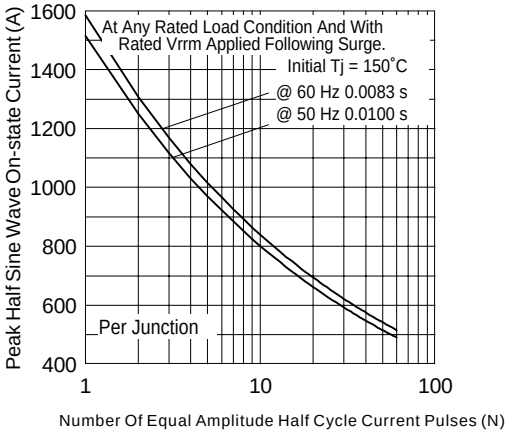


Fig. 3 - Maximum Non-Repetitive Surge Current

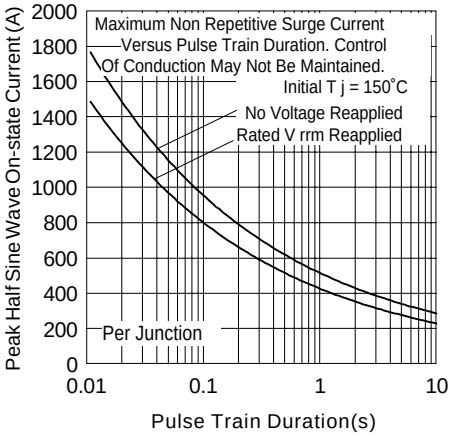


Fig. 4 - Maximum Non-Repetitive Surge Current

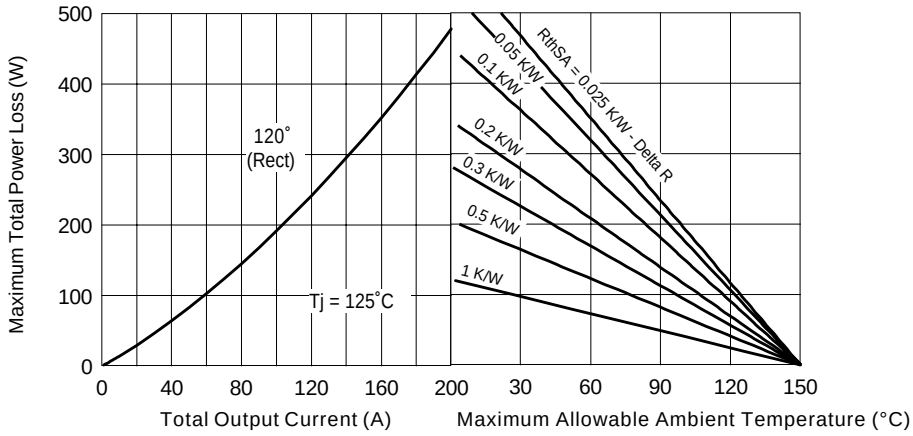


Fig. 5 - Current Rating Nomogram (1 Module Per Heatsink)

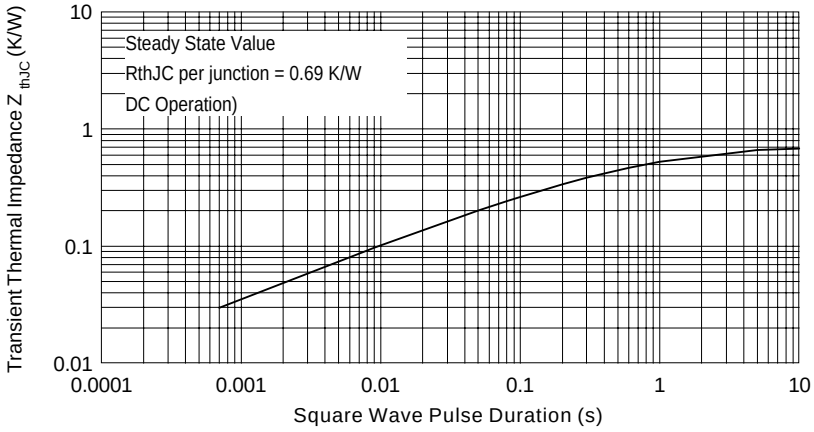


Fig. 6 - Thermal Impedance Z_{thJC} Characteristics

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.

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