

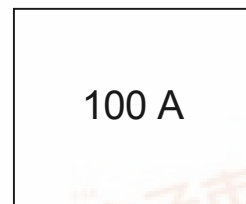
Preliminary Data Sheet I27405 07/01

# International **IR** Rectifier

## 100MT160P

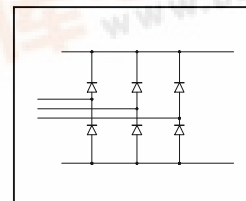
THREE PHASE BRIDGE

Power Module



### Features

- Solderable nickel plated terminals
- UL under approval



### Major Ratings and Characteristics

Parameters	100MT...P	Units
$I_o$	100	A
@ $T_c$	80	°C
$I_{FSM}$ @ 50Hz	450	A
@ 60Hz	470	
$I^2t$ @ 50Hz	1013	A <sup>2</sup> s
@ 60Hz	920	
$I^2\sqrt{t}$	10130	A <sup>2</sup> √s
$V_{RRM}$	1400 & 1600	V
$T_{STG}$ range	-40 to 125	°C
$T_j$ range	-40 to 150	



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### ELECTRICAL SPECIFICATIONS

#### Voltage Ratings

Type number	Voltage Code reverse voltage V	$V_{RRM}$ , maximum repetitive peak reverse voltage V	$V_{RSM}$ , maximum non-repetitive peak V	$I_{RRM}$ max. @ $T_J = 125^\circ\text{C}$ mA
100MT140P	140	1400	1500	5
100MT160P	160	1600	1700	

#### Forward Conduction

Parameter	100MT...P	Units	Conditions
$I_O$ Maximum RMS output current @ Case temperature	100	A	120° Rect conduction angle
	80	°C	
$I_{FSM}$ Maximum peak, one-cycle forward, non-repetitive on state surge current	450	A	t = 10ms No voltage reappplied
	470		t = 8.3ms
	380		t = 10ms 100% $V_{RRM}$ reappplied
	400		t = 8.3ms reappplied
$I^2t$ Maximum $I^2t$ for fusing	1013	A <sup>2</sup> s	t = 10ms No voltage reappplied
	920		t = 8.3ms reappplied
	600		t = 10ms 100% $V_{RRM}$ reappplied
	665		t = 8.3ms reappplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	10130	A <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reappplied
$V_{F(TO)}$ Value of threshold voltage	0.75	V	@ $T_J$ max.
$r_t$ Slope resistance	8.1	mΩ	
$V_{FM}$ Maximum forward voltage drop	1.51	V	$I_{pk} = 100\text{A}$ , $T_J = 25^\circ\text{C}$ $t_p = 400\mu\text{s}$ single junction

#### Insulation Table

Parameter	100MT...P	Units	Conditions
$V_{INS}$ RMS insulation voltage	3500	V	$T_J = 25^\circ\text{C}$ all terminal shorted f = 50Hz, t = 1s

Thermal and Mechanical Specifications

Parameter	100MT...P	Units	Conditions
T <sub>J</sub> Maximum junction operating temperature range	- 40 to 150	°C	
T <sub>stg</sub> Maximum storage temperature range	-40 to 125	°C	
R <sub>thJC</sub> Maximum thermal resistance, junction to case	0.19	K/W	DC operation per module
	1.14		DC operation per junction
	0.22		120° Rect conduction angle per module
	1.29		120° Rect conduction angle per junction
R <sub>thCS</sub> Maximum thermal resistance, case to heatsink	0.1	K/W	Per module. Mounting surface smooth, flat and greased. Heatsink compound thermal conductivity = 0.42W/mK
T Mounting torque ± 10% to heatsink	4	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	65	g	Lubricated threads.

Ordering Information Table

**Device Code**

<b>10</b>	<b>0</b>	<b>MT</b>	<b>160</b>	<b>P</b>	<b>B</b>
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①
②
③
④
⑤

- 1** - Current rating code
- 2** - Circuit configuration code
- 3** - Essential part number
- 4** - Voltage code: Code x 10 = V<sub>RRM</sub> (See Voltage Ratings table)
- 5** - Pinout code: \_\_\_\_\_
 

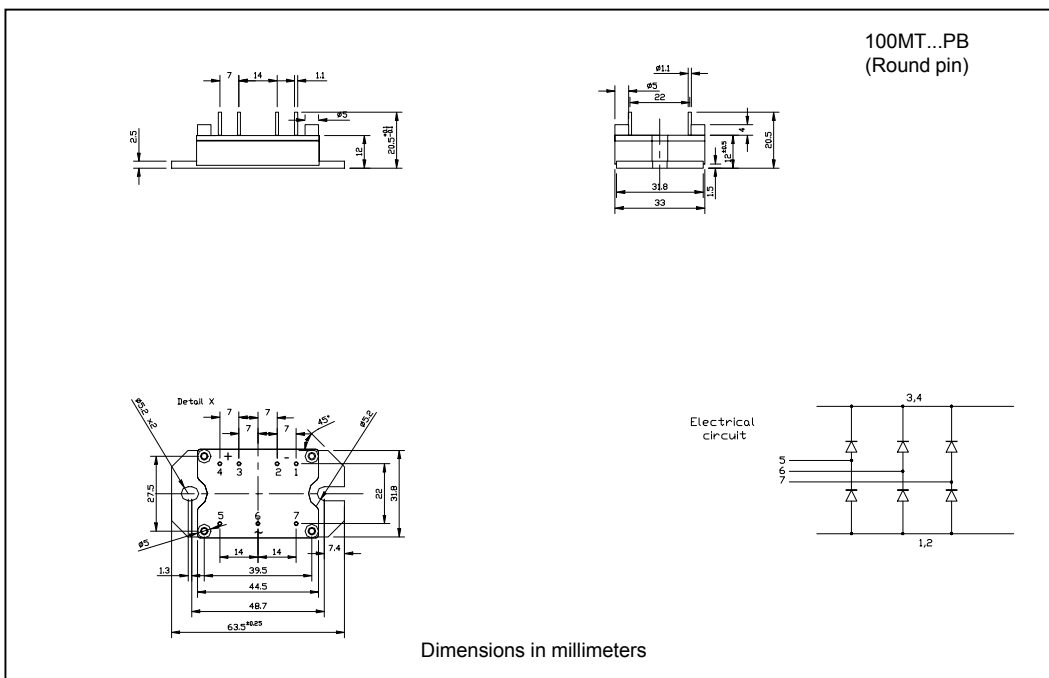
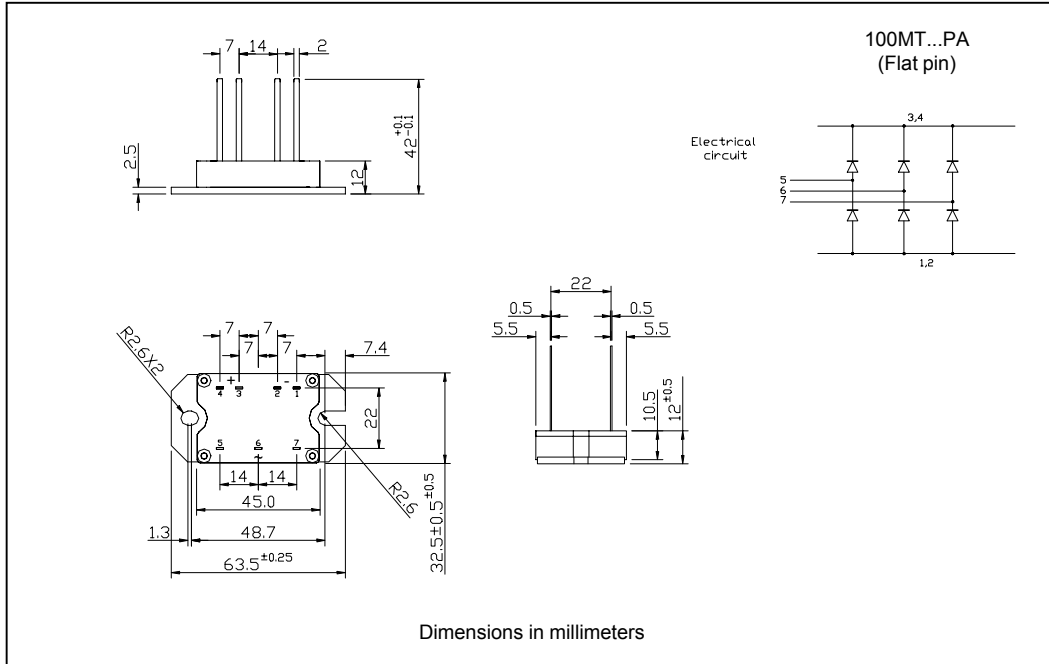
A = Flat pins  
 B = Round pins

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## Outline Table



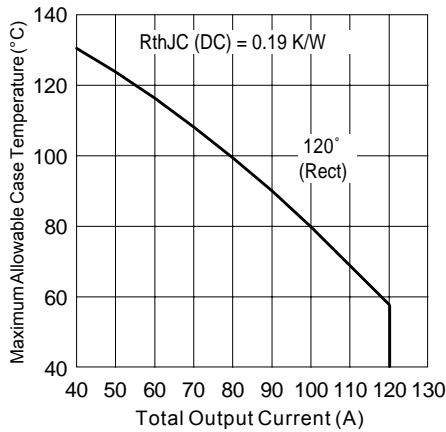


Fig. 1 - Current Rating Characteristics

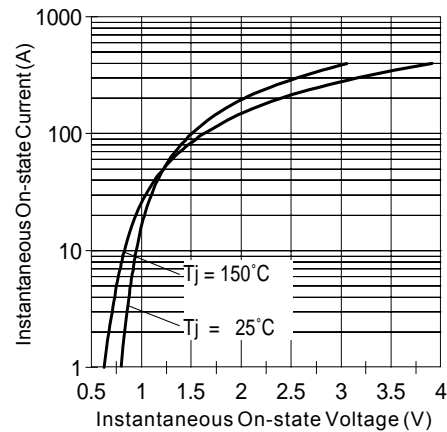


Fig. 2 - On-state Voltage Drop Characteristics

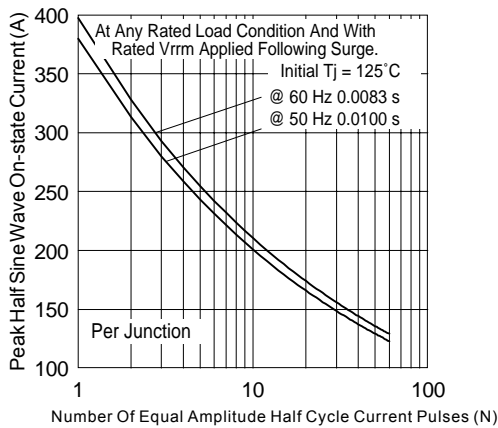


Fig. 3 - Maximum Non-Repetitive Surge Current

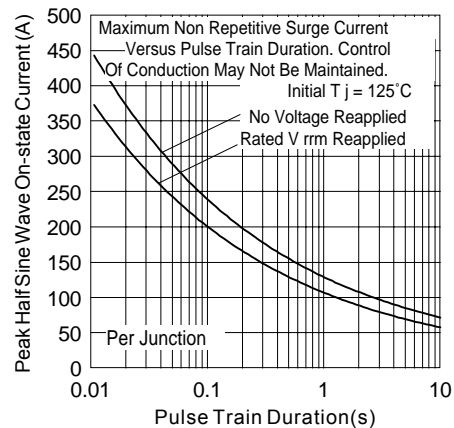


Fig. 4 - Maximum Non-Repetitive Surge Current

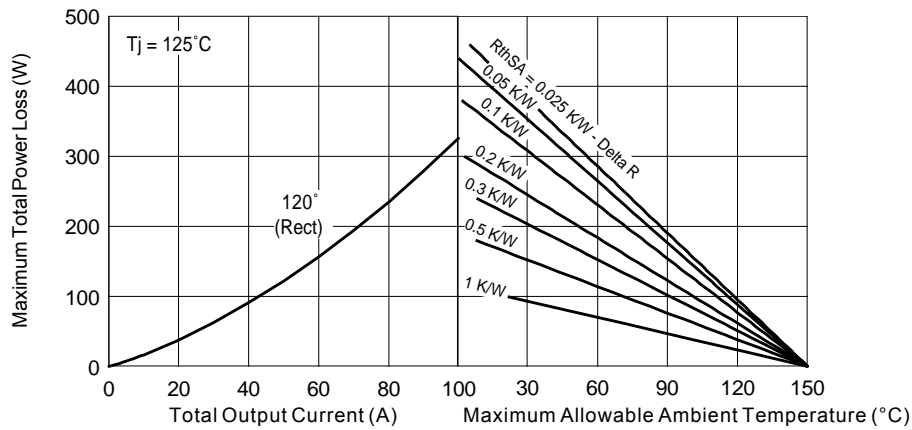


Fig. 5 - Current Rating Nomogram (1 Module Per Heatsink)

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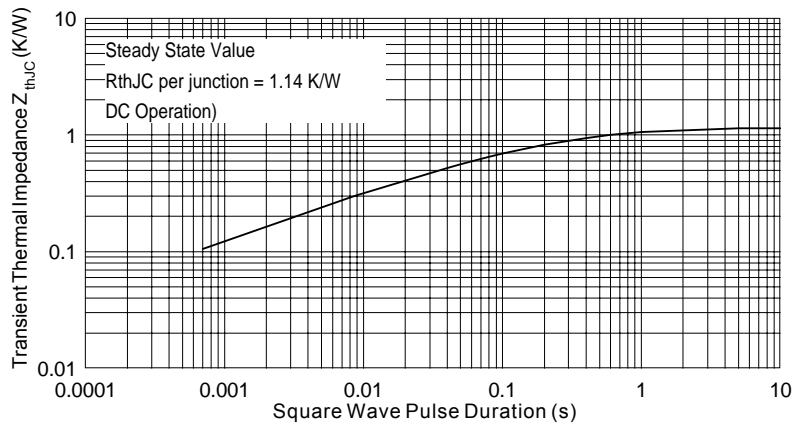


Fig. 6 - Thermal Impedance  $Z_{thJC}$  Characteristics

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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