



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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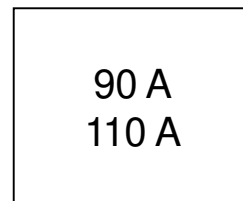


### THREE PHASE BRIDGE

### 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	90MT.KB	110MT.KB	Units
$I_O$	90 (120)	110 (150)	A
@ $T_C$	90 (61)	90 (57)	°C
$I_{FSM}$ @ 50Hz	770	950	A
@ 60Hz	810	1000	A
$i^2t$ @ 50Hz	3000	4500	A <sup>2</sup> s
@ 60Hz	2700	4100	A <sup>2</sup> s
$i^2\sqrt{t}$	30000	45000	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

## 90-110MT..KB Series

Bulletin I27501 rev. A 05/03

International  
IRF 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
90-110MT..KB	80	800	900	10
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	
	160	1600	1700	

#### Forward Conduction

Parameter	90MT.KB	110MT.KB	Units	Conditions
$I_O$ Maximum DC output current @ Case temperature	90 (120)	110 (150)	A	120° Rect conduction angle
	90 (61)	90 (57)	°C	
$I_{FSM}$ Maximum peak, one-cycle forward, non-repetitive surge current	770	950	A	t = 10ms No voltage
	810	1000		t = 8.3ms reapplied
	650	800		t = 10ms 100% $V_{RRM}$
	680	840		t = 8.3ms reapplied
$I^2t$ Maximum $I^2t$ for fusing	3000	4500	A <sup>2</sup> s	t = 10ms No voltage
	2700	4100		t = 8.3ms reapplied
	2100	3200		t = 10ms 100% $V_{RRM}$
	1900	2900		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	30000	45000	A <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reapplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.89	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	1.05	0.99	V	$(I > \pi \times I_{F(AV)})$ , @ $T_J$ max.
$r_{f1}$ Low level value of forward slope resistance	5.11	4.37	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	4.64	4.64	mΩ	$(I > \pi \times I_{F(AV)})$ , @ $T_J$ max.
$V_{FM}$ Maximum forward voltage drop	1.6	1.4	V	$I_{pk} = 150A$ , $T_J = 25^\circ C$ , $t_p = 400\mu s$ 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	90MT.KB	110MT.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	0.21	0.18	K/W	DC operation per module
	1.26	1.07		DC operation per junction
	0.25	0.21		120° Rect conduction angle per module
	1.47	1.25		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	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.
	to terminal	3 to 4		
wt Approximate weight	176		g	





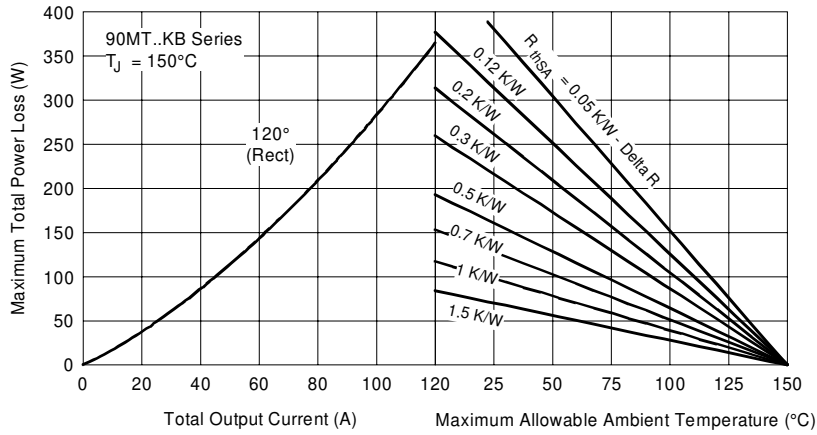


Fig. 3 - Total Power Loss Characteristics

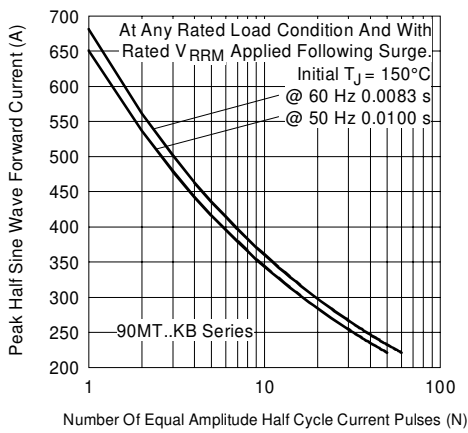


Fig. 4 - Maximum Non-Repetitive Surge Current

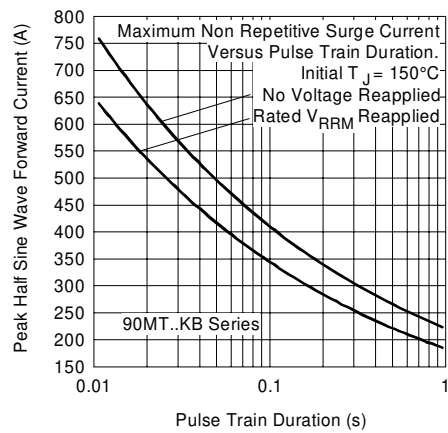


Fig. 5 - Maximum Non-Repetitive Surge Current

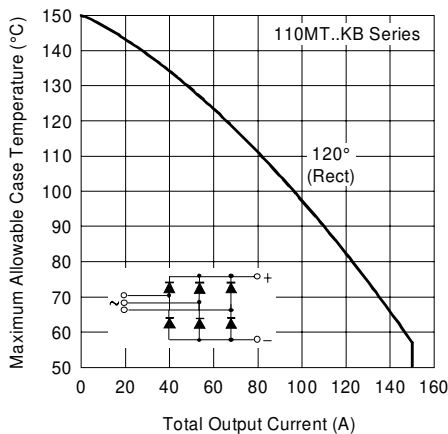


Fig. 6 - Current Ratings Characteristics

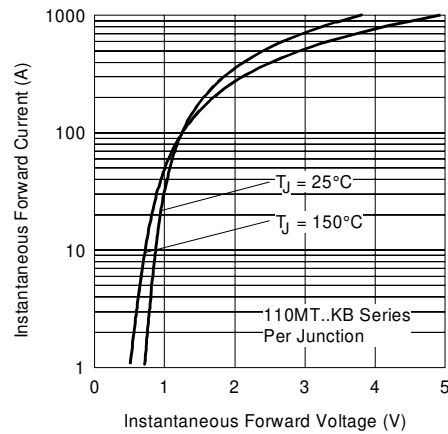


Fig. 7 - Forward Voltage Drop Characteristics

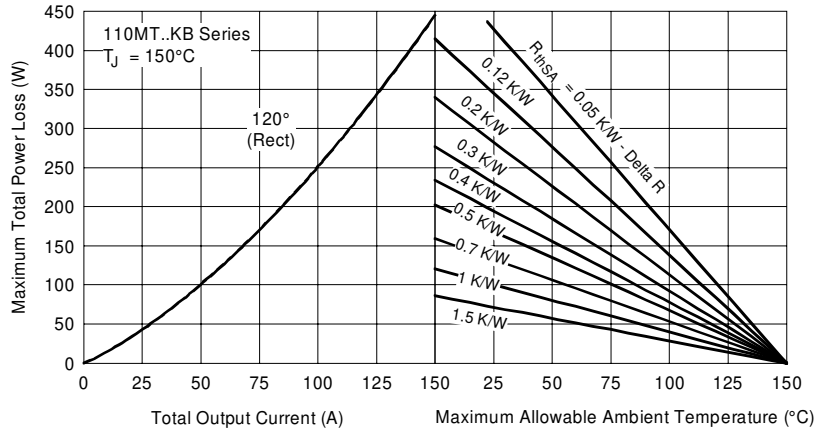


Fig. 8 - Total Power Loss Characteristics

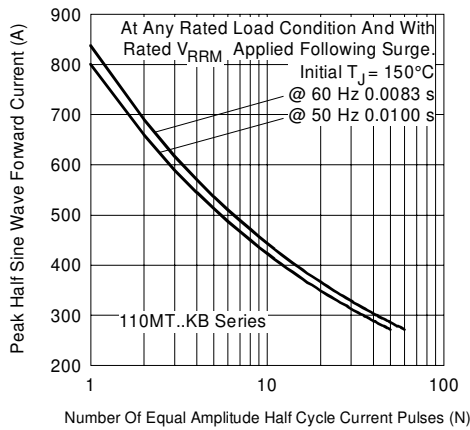


Fig. 9 - Maximum Non-Repetitive Surge Current

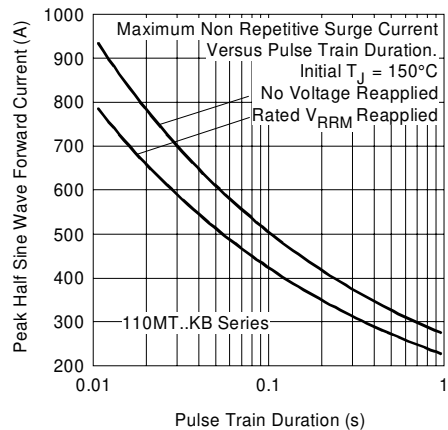


Fig. 10 - Maximum Non-Repetitive Surge Current

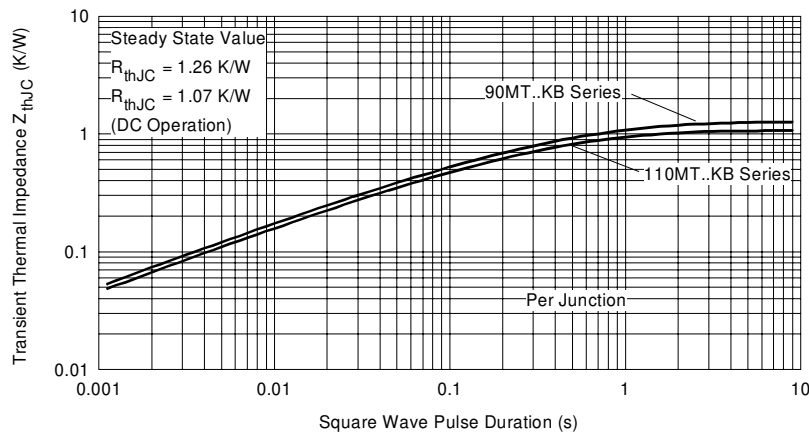


Fig. 11 - Thermal Impedance  $Z_{thJC}$  Characteristic

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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