

### Features

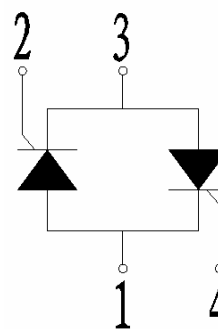
- Isolation voltage 3500 V~
- Industrial Standard Package
- High Surge Capability
- Glass Passivated Chips
- Simple Mounting
- Electrically Isolated by DBC Ceramic

### Applications

- DC Motor Control and Drives
- Battery Charges
- Welders
- Power Converters
- Lighting Control
- Heat and Temperature Control

### Advantages

- Space and weight savings
- Improved temperature and power cycling



### ABSOLUTE MAXIMUM RATINGS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

Symbol	Test Condition	Value	Unit
$V_{RRM}/V_{DRM}$		1600	V
$I_{T(AV)}$	$T_C=85^{\circ}\text{C}$ , 180° conduction, half sine wave;	40	A
$I_{T(RMS)}$	as AC switch;	100	A
$I_{TSM}$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=0$ ;	850	A
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=0$ ;	890	
	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$ ;	715	
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	750	
$i^2t$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=0$ ;	3.61	$\text{K A}^2\text{s}$
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=0$ ;	3.3	
	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$ ;	2.56	
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	2.33	
$I_{DRM}/I_{RRM}$	$T_J=130^{\circ}\text{C}$ , $V_D=V_R=1600\text{V}$ , gate open circuit;	15	mA
dV/dt	$T_J=130^{\circ}\text{C}$ , exponential to 67% rated $V_{DRM}$	500	V/us
$V_{ISOL}$	50Hz, all terminals shorted, $t=1\text{s}$ , $I_{ISOL}\leq 1\text{mA}$ ;	3500	V~
$T_J$	Max. junction operating temperature range	-40~125	$^{\circ}\text{C}$
$T_{STG}$	Max. storage temperature range	-40~125	$^{\circ}\text{C}$

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**ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

Symbol	Test Condition	Min.	Typ.	Max.	Unit
$V_{TO}$	$16.7\% \times p \times I_{AV} < I < p \times I_{AV}, T_J = 130^{\circ}\text{C};$			0.88	V
	$I > p \times I_{AV}, T_J = 130^{\circ}\text{C};$			0.91	V
$r_t$	$16.7\% \times p \times I_{AV} < I < p \times I_{AV}, T_J = 130^{\circ}\text{C};$			5.9	m $\Omega$
	$I > p \times I_{AV}, T_J = 130^{\circ}\text{C};$			5.74	m $\Omega$
$I_H$	$V_{AK} = 6\text{V}$ , resistive load;			200	mA
$I_L$	Anode supply =6V, resistive load=1 $\Omega$ , gate pulse =10V, 100us;			400	mA
$V_{TM}$	$I_{TM} = 141\text{A}$ , $t_d = 10\text{ms}$ , half sine			1.81	V
$P_{GM}$	$t_p \leq 5\text{ms}$ , $T_J = 125^{\circ}\text{C};$			10	W
$P_{GM(AV)}$	$f = 50\text{Hz}$ , $T_J = 125^{\circ}\text{C};$			2.5	W
$I_{GM}$	$t_p \leq 5\text{ms}$ , $T_J = 125^{\circ}\text{C};$			2.5	A
$-V_{GT}$				10	V
$V_{GT}$	$V_A = 6\text{V}$ , $R_A = 1\Omega$ , $T_J = -40^{\circ}\text{C};$			4	V
	$V_A = 6\text{V}$ , $R_A = 1\Omega;$			2.5	
	$V_A = 6\text{V}$ , $R_A = 1\Omega$ , $T_J = 125^{\circ}\text{C};$			1.7	
$I_{GT}$	$V_A = 6\text{V}$ , $R_A = 1\Omega$ , $T_J = -40^{\circ}\text{C};$			270	mA
	$V_A = 6\text{V}$ , $R_A = 1\Omega;$			150	
	$V_A = 6\text{V}$ , $R_A = 1\Omega$ , $T_J = 125^{\circ}\text{C};$			80	
$V_{GD}$	$V_{AK} = V_{DRM}$ , $T_J = 125^{\circ}\text{C}$			0.25	V
$I_{GD}$				6	mA
di/dt	$T_J = 25^{\circ}\text{C}$ , $V_D = 0.67V_{DRM}$ , $I_{TM} = 345\text{A}$ , $I_g = 500\text{mA}$ , $tr < 0.5\ \mu\text{s}$ , $tp > 6\ \mu\text{s}$			150	A/us

**THERMAL AND MECHANICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

Symbol	Test Condition	value	Unit
$R_{thjc}$	DC operation, per junction;	0.6	K/W
$R_{THCS}$	Mounting surface smooth, flat and greased, per junction	0.15	K/W
Md	Mounting torque(M5)	3 to 5	N·m
	Terminal connection torque(M5)		
Weight	Typical value	27	g

**Characteristic curves**

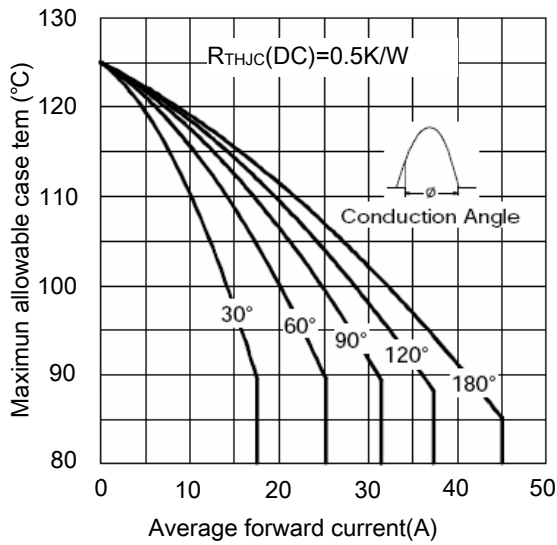


Figure 1. current rating characteristics

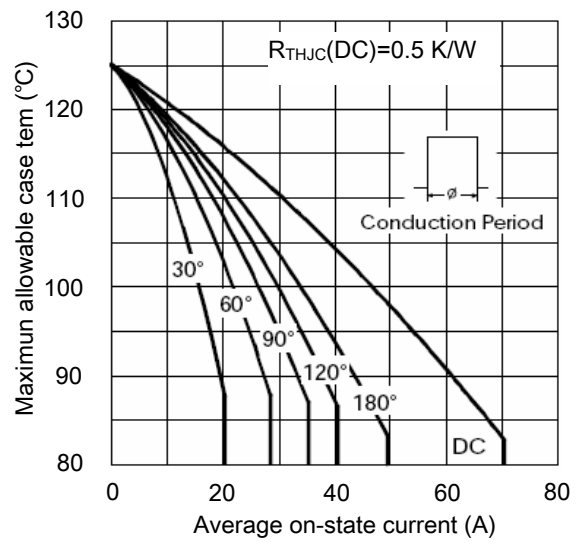


Figure 2. current rating characteristics

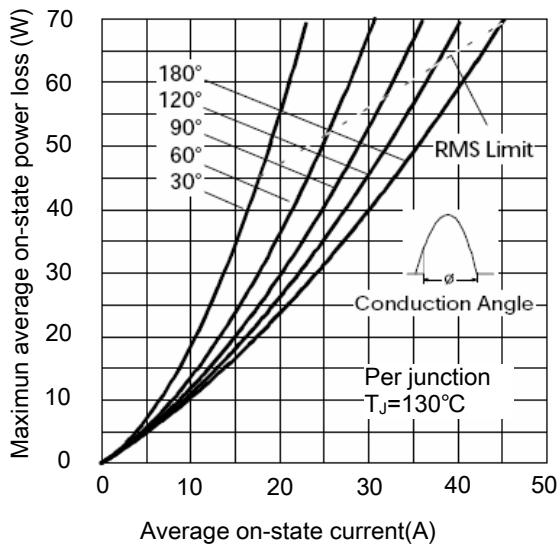


Figure 3. on-state power loss characteristics

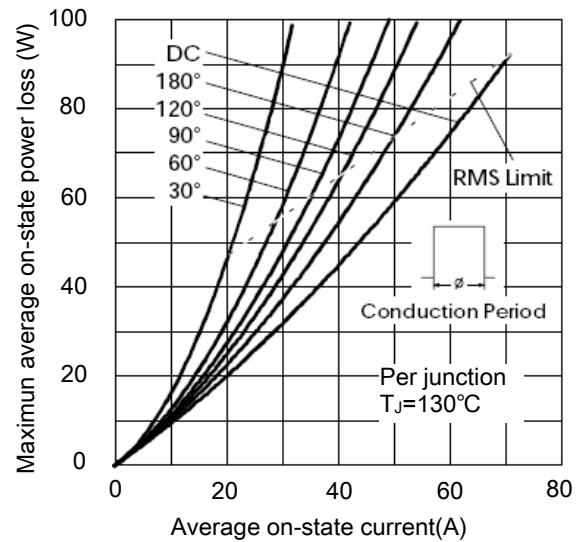


Figure 4. on-state power loss characteristics

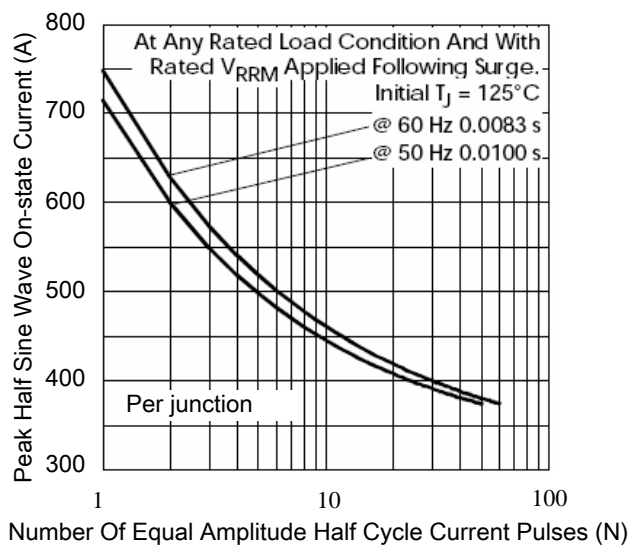


Figure 5. Maximum Non-Repetitive Surge Current

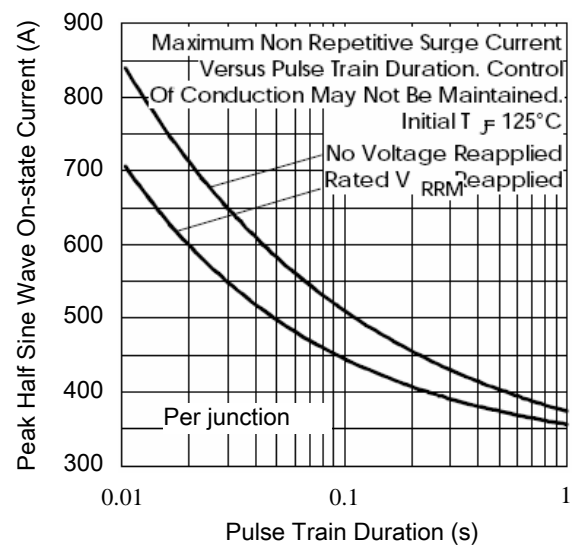


Figure 6. Maximum Non-Repetitive Surge Current

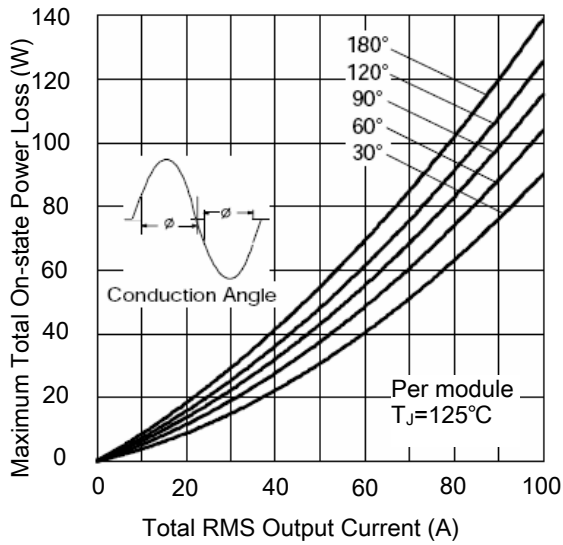


Figure 7. On-State Power Loss Characteristics-1

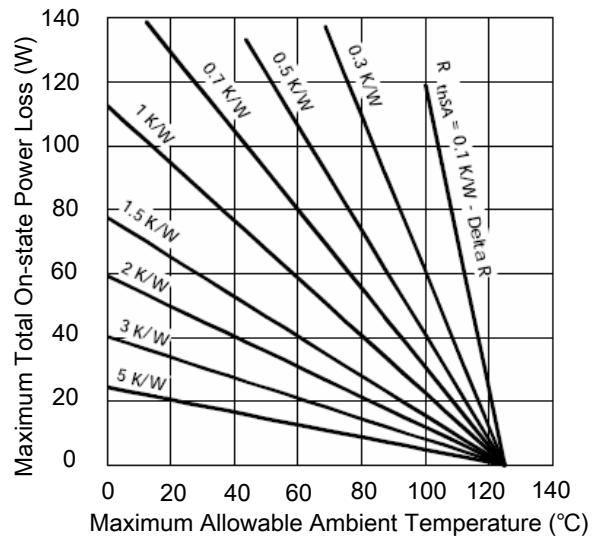


Figure 8. On-State Power Loss Characteristics-2

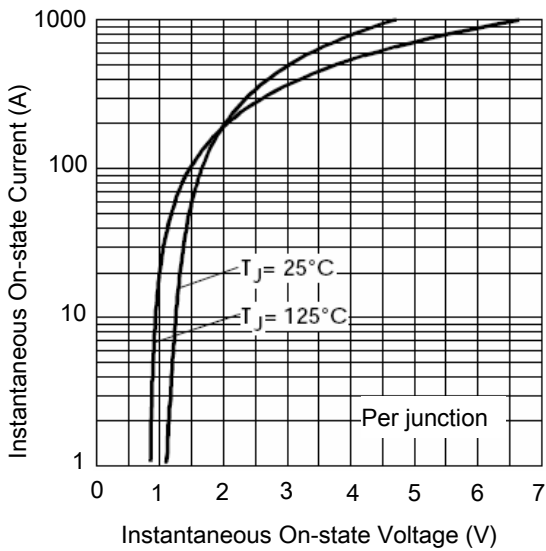


Figure 9. On State Voltage Drop Characteristics

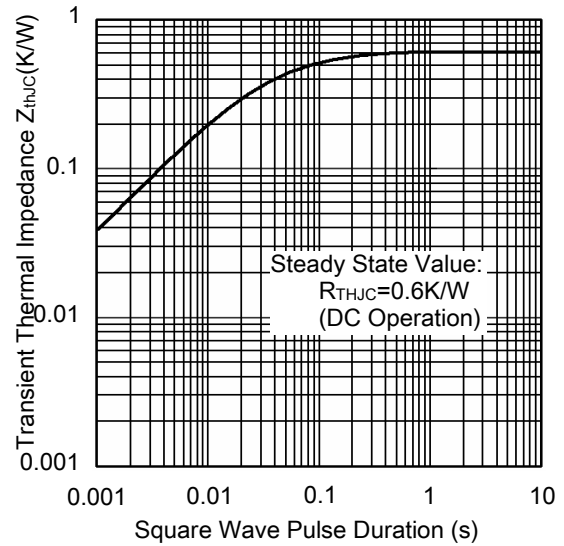


Figure 10. Thermal Impedance ZthJC Characteristics

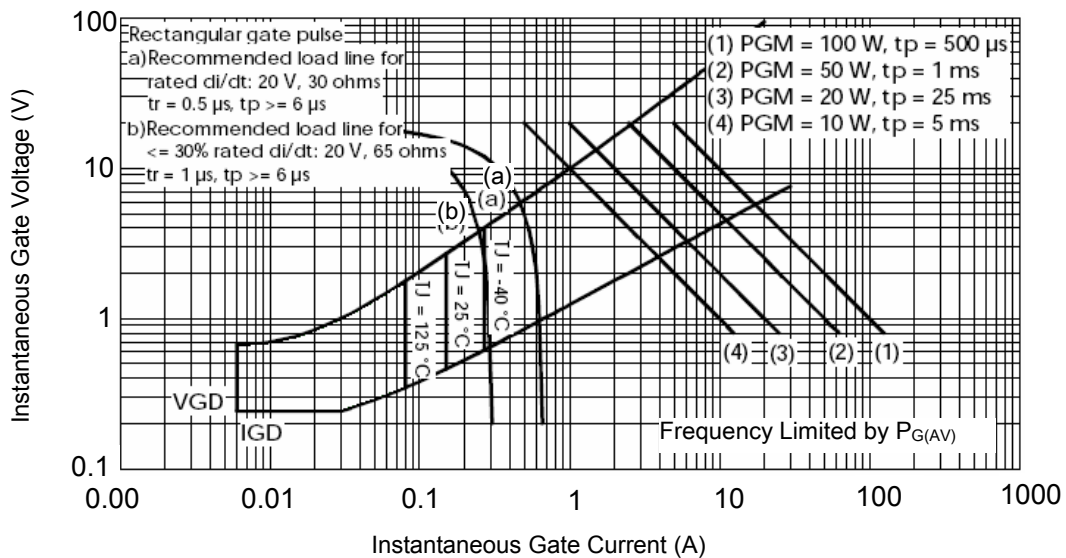


Figure.11 Gate Characteristics

## Package Outline (Dimensions in mm)

