

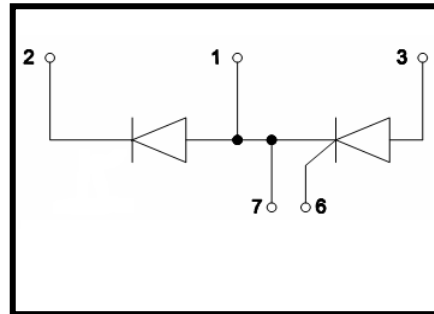
Features

- Isolation Voltage 3000 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

■ Diode

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Test Condition	Value	Unit
V_{RRM}		1600	V
$I_{d(AV)}$	$T_C=100^{\circ}\text{C}$, module	160	A
I_{FSM}	$T_J=45^{\circ}\text{C}$; $t=10\text{ms}$ (50Hz),sine	5160	A
	$V_R=0$ $t=8.3\text{ms}$ (60Hz),sine	5420	A
I^2t	$T_J=45^{\circ}\text{C}$; $t=10\text{ms}$ (50Hz),sine	133.1	KA^2s
	$V_R=0$ $t=8.3\text{ms}$ (60Hz),sine	121.9	KA^2s
T_J	Junction Temperature	-40~150	$^{\circ}\text{C}$

ELECTRICAL AND THERMAL CHARACTERISTICS

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

Symbol	Test Condition	Value	Unit
I_R	$V_R=V_{RRM}$; $T_J=25^{\circ}\text{C}$	≤ 0.5	mA
	$V_R=V_{RRM}$; $T_J=T_{JM}$	≤ 6	mA
V_F	$I_F=500\text{A}$	1.50	V
V_{T0}	For power-loss calculations only	0.8	V
R_{thJC}	Thermal Resistance , Junction-to-Case	0.18	K/W
R_{thCS}	Thermal Resistance, Case -to-Sink	0.10	K/W

■ Thyristor

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;	160	A
$I_{T(RMS)}$	as AC switch;	355	A
I_{TSM}	$T_J=45^\circ\text{C}$, $t=10\text{ms}$ (50Hz), sine, $V_R=0$;	3000	A
	$T_J=45^\circ\text{C}$, $t=8.3\text{ms}$ (60Hz), sine, $V_R=0$;	3200	
I^2t	$T_J=45^\circ\text{C}$, $t=10\text{ms}$ (50Hz), sine, $V_R=0$;	45	KA ² s
	$T_J=45^\circ\text{C}$, $t=8.3\text{ms}$ (60Hz), sine, $V_R=0$;	42.5	
I_{DRM}/I_{RRM}	$V_R=V_{RRM}$, $V_D=V_{DRM}$, gate open circuit;	0.5	mA
	$T_J=125^\circ\text{C}$, $V_R=V_{RRM}$, $V_D=V_{DRM}$, gate open circuit;	40	mA
dV/dt	$T_J=125^\circ\text{C}$, exponential to 67% rated V_{DRM}	1000	V/us
V_{ISOL}	50Hz, all terminals shorted, $t=1\text{min}$, $I_{ISOL}\leq 1\text{mA}$;	3000	V~
T_J	Max. junction operating temperature range	-40~125	°C
T_{STG}	Max. storage temperature range	-40~125	°C

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

Symbol	Test Condition	Min.	Typ.	Max.	Unit
V_{TO}	$16.7\% \times \pi \times I_{AV} < I < \pi \times I_{AV}$, $T_J=125^\circ\text{C}$;			0.80	V
	$I > \pi \times I_{AV}$, $T_J=125^\circ\text{C}$;			0.98	V
r_t	$16.7\% \times \pi \times I_{AV} < I < \pi \times I_{AV}$, $T_J=125^\circ\text{C}$;			1.67	mΩ
	$I > \pi \times I_{AV}$, $T_J=125^\circ\text{C}$;			1.38	mΩ
I_H	$V_{AK}=6\text{V}$, initial $I_T=30\text{A}$;			200	mA
I_L	Anode supply =6V, resistive load=1Ω, gate pulse =10V, 100us;			400	mA
V_{TM}	$I_{TM}=500\text{A}$, $t_d=10\text{ms}$, half sine;		1.54	2.0	V
P_{GM}	$t_p\leq 5\text{ms}$, $T_J=125^\circ\text{C}$;			12	W
$P_{GM(AV)}$	$f=50\text{Hz}$, $T_J=125^\circ\text{C}$;			3	W
I_{GM}	$t_p\leq 5\text{ms}$, $T_J=125^\circ\text{C}$;			3	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}	$V_{AK}=V_{DRM}$, $T_J=125^\circ\text{C}$			0.3	V
I_{GD}				10	mA
di/dt	$I_{TM}=400\text{A}$, rated V_{DRM} , $T_J=125^\circ\text{C}$			300	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;	0.18	K/W
R_{THCS}	Mounting surface smooth, flat and greased, per junction;	0.1	K/W
Md	Mounting torque(M6)	3 ~ 5	N·m
	Terminal connection torque(M6)		
Weight	Typical value	156	g

Characteristic curves

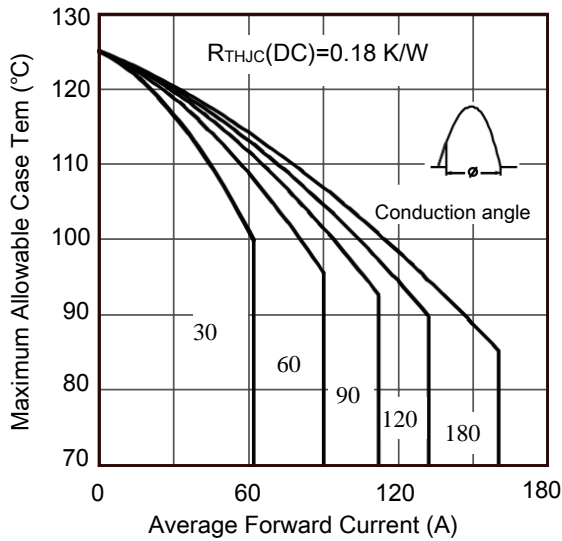


Figure 1. Current Rating Characteristics

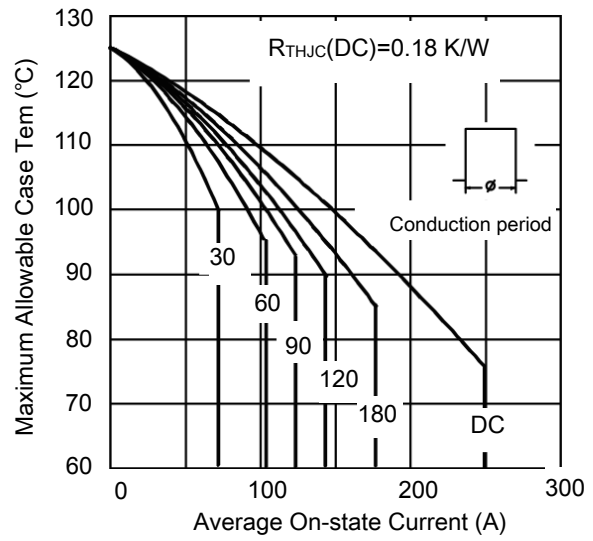


Figure 2. Current Rating Characteristics

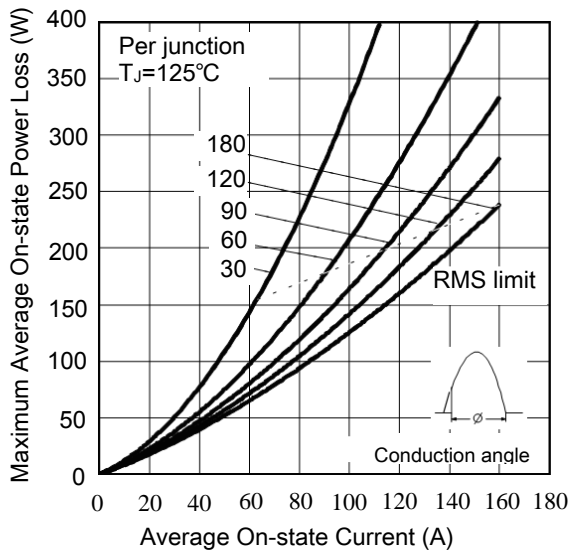


Figure 3. On-state Power Loss Characteristics

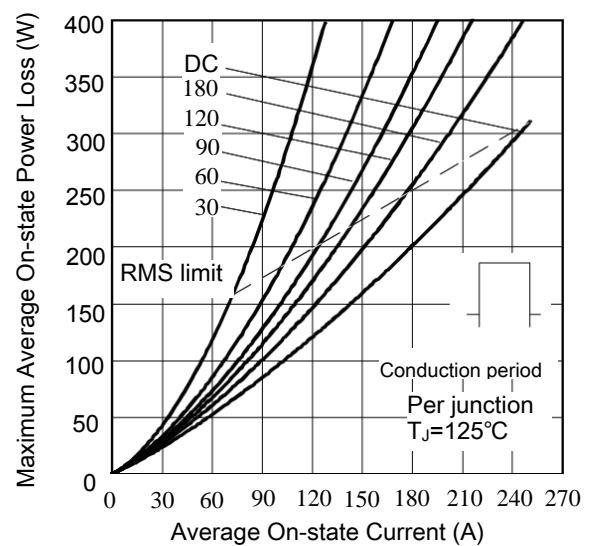


Figure 4. On-state Power Loss Characteristics

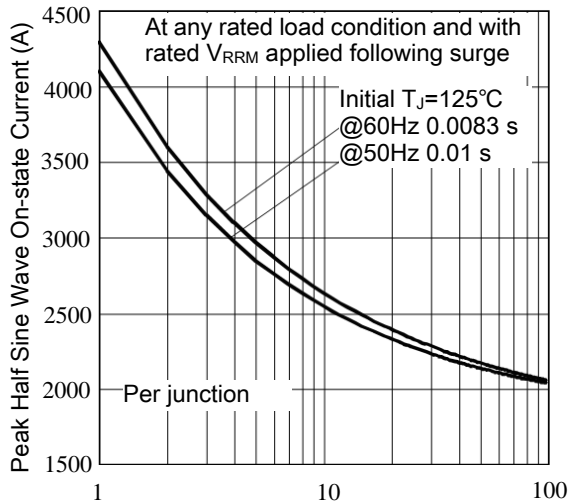


Figure 5. Maximum Non-Repetitive Surge Current

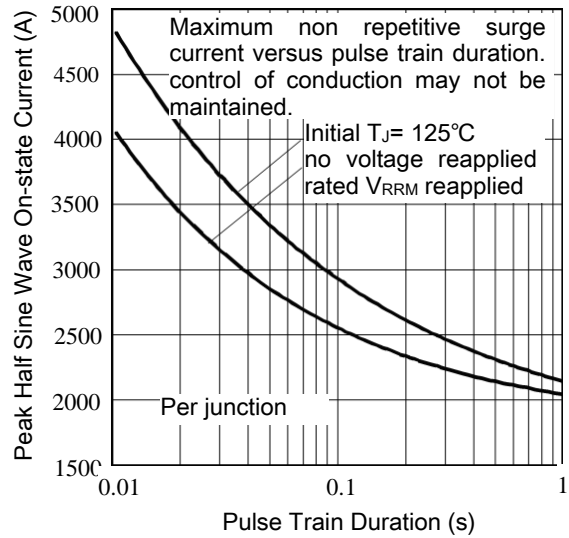


Figure 6. Maximum Non-Repetitive Surge Current

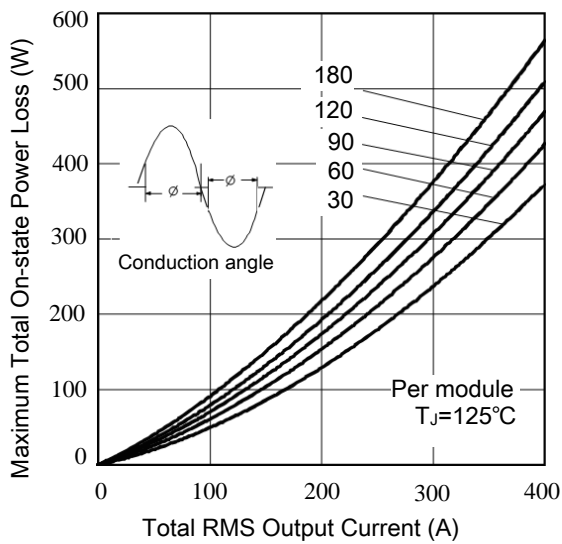


Figure 7. On-State Power Loss Characteristics-1

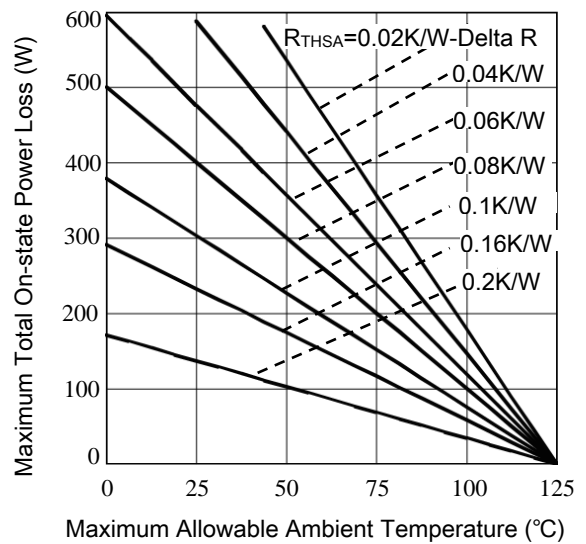


Figure 8. On-State Power Loss Characteristics-2

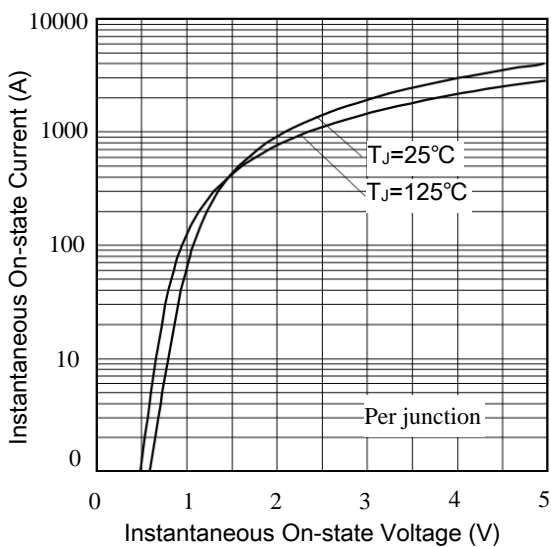


Figure 9. On State Voltage Drop Characteristics

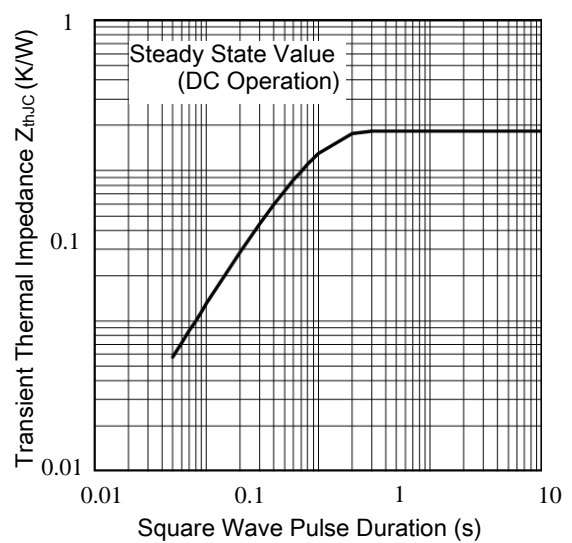


Figure 10. Thermal Impedance Z_{thJC} Characteristics

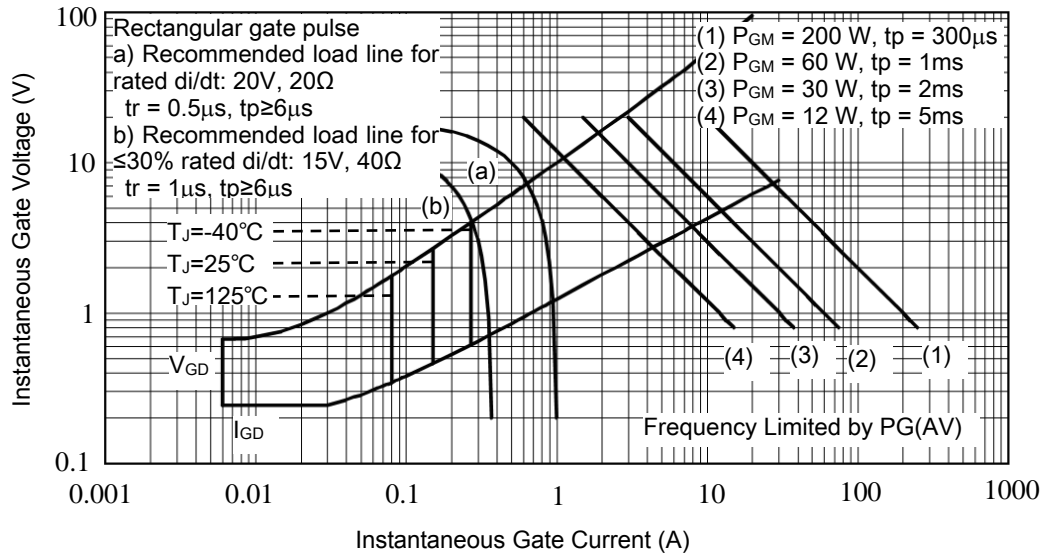


Figure 11. Gate Characteristics

Package Outline (Dimensions in mm)

