

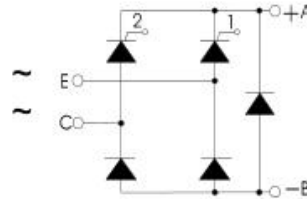
PRODUCT FEATURES

- Package with screw terminals
- Isolation voltage 3000V~
- Planar glass passivated chips
- Low forward voltage drop



APPLICATIONS

- Heat and temperature control for Industrial furnaces and chemical processes
- Motor control
- Power converter
- Lighting control



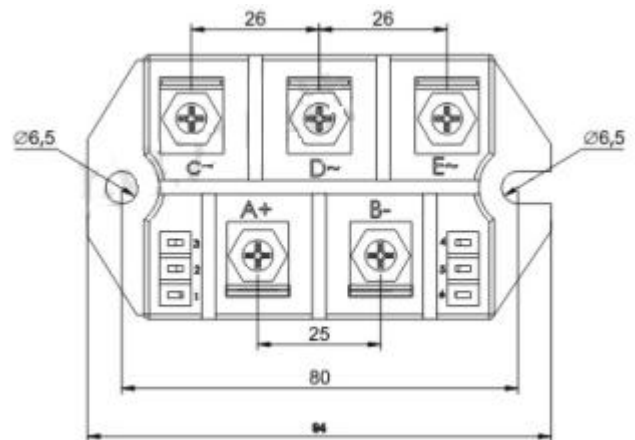
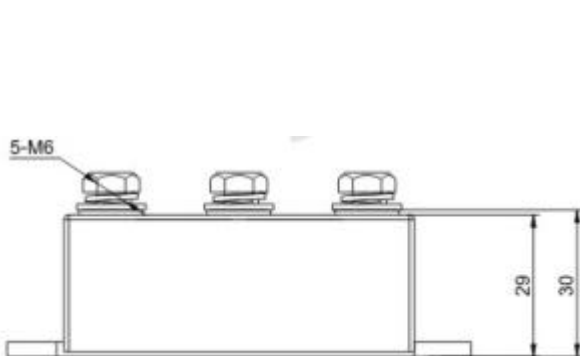
ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter		Test Conditions	Values	Unit
$V_{RSM/DSM}$	Maximum None Repetitive Reverse Voltage		$T_J = 25^{\circ}\text{C}$	1700	V
$V_{RRM/DRM}$	Maximum Repetitive Reverse Voltage		$T_J = 25^{\circ}\text{C}$	1600	V
$I_{d(AV)}$	Average Forward Current		$T_C=85^{\circ}\text{C}$	82	A
$I_{T(RMS)}$	RMS Forward Current		$\sin 180^{\circ}$	128	A
$I_{TSM/FSM}$	Non-Repetitive Surge Forward Current		$T_J = 45^{\circ}\text{C}, 10\text{ms}(50\text{Hz})$	1.15	kA
			$T_J = 45^{\circ}\text{C}, 8.3\text{ms}(60\text{Hz})$	1.23	kA
			$T_J = 125^{\circ}\text{C}, 10\text{ms}(50\text{Hz})$	1.0	kA
			$T_J = 125^{\circ}\text{C}, 8.3\text{ms}(60\text{Hz})$	1.07	kA
I^2t	Value For Fusing		$T_J = 45^{\circ}\text{C}, 10\text{ms}(50\text{Hz})$	6.6	kA^2s
			$T_J = 45^{\circ}\text{C}, 8.3\text{ms}(60\text{Hz})$	6.28	kA^2s
			$T_J = 125^{\circ}\text{C}, 10\text{ms}(50\text{Hz})$	5.0	kA^2s
			$T_J = 125^{\circ}\text{C}, 8.3\text{ms}(60\text{Hz})$	4.75	kA^2s
V_{T0}	Threshold voltage	for power loss calculation only	$T_J = 125^{\circ}\text{C}$	0.85	V
r_T	Slope resistance		$T_J = 125^{\circ}\text{C}$	6	$\text{m}\Omega$
I_{DD}	Reverse current ,drain current		$V_{DD} = V_{RRM}$	5	mA
V_T	Forward voltage drop		$I_T=200\text{A}, T_J = 25^{\circ}\text{C}$	1.75	V
P_{GM}	Max,gate power dissipation		$t_p=30\mu\text{s}, T_c = 125^{\circ}\text{C}$	10	W
			$t_p=500\mu\text{s}, T_c = 125^{\circ}\text{C}$	5	W
P_{GAV}	Average gate power dissipation			0.5	W
di/dt	Critical rate of rise of current		$T_J = 125^{\circ}\text{C}$ repetitive , $I_T = 50\text{A}$	150	A/ μs



		$T_J = 125^\circ\text{C}$ no-repet. , $I_T = 28\text{A}$	500	A/us
dv/dt	Critical rate of rise of voltage	$T_J = 125^\circ\text{C}$ $V = 2/3V_{RRM}$	1000	V/us
I_H	Holding current	$T_J = 25^\circ\text{C}$ $V_D = 6\text{V}$	200	mA
I_L	Latching current	$T_J = 25^\circ\text{C}$ $t_p = 30\mu\text{s}$ $I_G = 0.3\text{A}$	450	mA
V_{GT}	Gate trigger voltage	$V_D = 6\text{V}$ $T_J = 25^\circ\text{C}$	1.5	V
		$V_D = 6\text{V}$ $T_J = -40^\circ\text{C}$	1.6	V
I_{GT}	Gate trigger current	$V_D = 6\text{V}$ $T_J = 25^\circ\text{C}$	100	mA
		$V_D = 6\text{V}$ $T_J = -40^\circ\text{C}$	200	mA
V_{GD}	Gate non-trigger voltage	$V_D = 2/3V_{RRM}$ $T_J = 125^\circ\text{C}$	0.2	V
I_{GD}	Gate non-trigger current		5	mA
t_{gd}		$T_J = 25^\circ\text{C}$ $V = 1/2V_{RRM}$	2	us
t_q		$T_J = 125^\circ\text{C}$, $I_T = 150\text{A}$	150	us
T_J	Junction Temperature		-40 to +125	$^\circ\text{C}$
T_{STG}	Storage Temperature Range		-40 to +125	$^\circ\text{C}$
Torque	Module-to-Sink	Recommended (M6)	2.5–3.9 (25–40)	Nm(kgf _{cm})
Torque	Module Electrodes	Recommended (M6)	2.5–3.9 (25–40)	Nm(kgf _{cm})
$R_{\theta JC}$	Thermal resistance junction to case	Per module	0.13	k /W
$R_{\theta CH}$	Thermal resistance case to heatsink	Per module	0.16	k /W
V_{ISOL}	Isolation voltage	50/60Hz $I_{ISOL} < 1\text{mA}$ $t = 1\text{s}/1\text{min}$	3000 / 2500	V



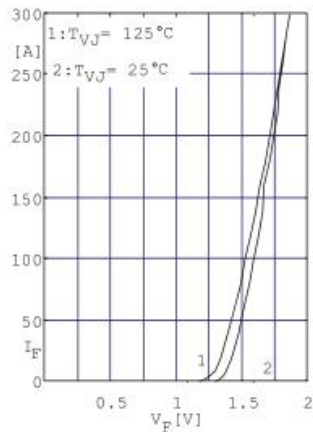


Fig. 1 Forward current vs. voltage drop per diode or thyristor

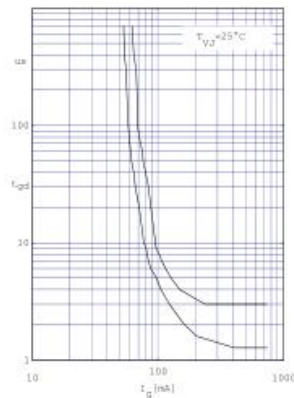


Fig. 2 Gate trigger delay time

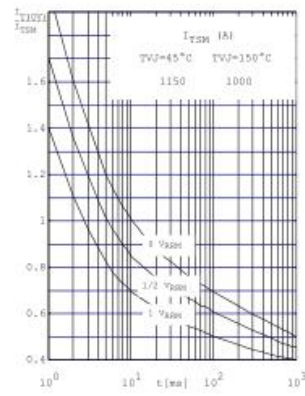


Fig. 3 Surge overload current per diode (or thyristor) I_{FSM} . I_{TSM} : Crest value t : duration

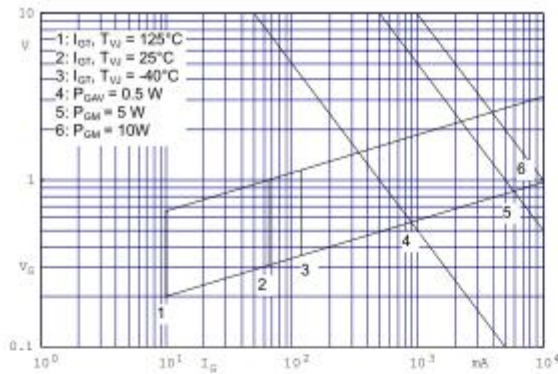


Fig.4 Gate trigger characteristic

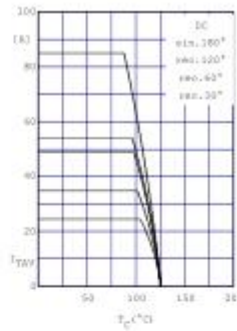


Fig.5 Maximum forward current at case temperature

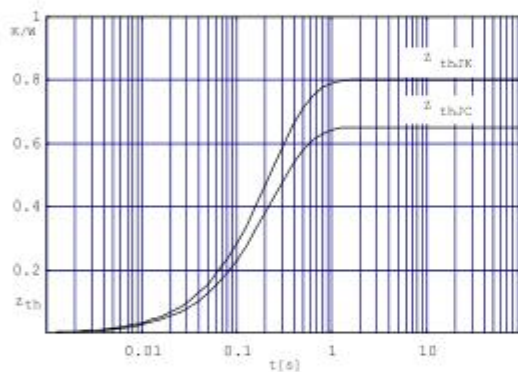


Fig.6 Transient thermal impedance per thyristor or diode (calculated)

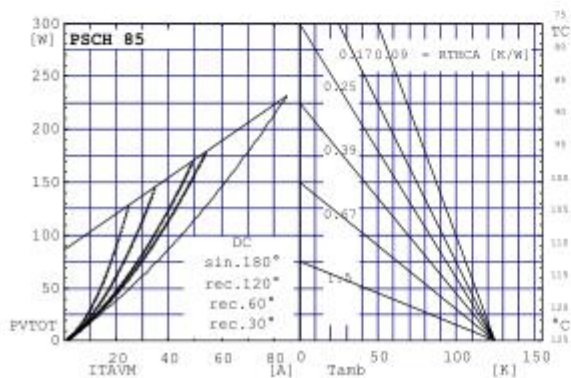


Fig. 7 Power dissipation vs. direct output current and ambient temperature