SEMIPONT® 5

Three phase antiparallel thyristor module

SKUT 115/16T V2

Features

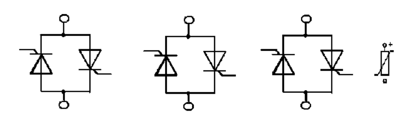
- Compact design
- Two screws mounting
- Heat ransfer and isolation through direct copper board (Low R_{th})
- Low resistance in steady-state and high reliability
- High surge currents
- Glass passivated thyrsitor chips
- UL recognized, file no. E 63 532
- Integrated temperature sensor

Typical Applications*

- Soft starter
- Light control(e.g. studios, theaters)
- Temperature control (e.g. oven, chemical processes)

Remarks

- I_{RMS}=105A , for W3C application, sin.180° and T_S=85°C



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Absolute Maximum Ratings				
Symbol	**Conditions**		**Values**	**Unit**
Chip				
$I_{T(AV)}$	sinus 180°	T_s = 25 °C	127	A
		T_s = 85 °C	71	A
I_{TSM}	10 ms	T_j = 25 °C	1500	A
		T_j = 130 °C	1250	A
i^2t	10 ms	T_j = 25 °C	11250	A^2s
		T_j = 130 °C	7813	A^2s
V_{RSM}			1700	V
V_{RRM}			1600	V
V_{DRM}			1600	V
$(di/dt)_{cr}$	T_j = 130 °C		50	A/µs
$(dv/dt)_{cr}$	T_j = 130 °C		500	V/µs
T_j			-40 ... 125	°C
Module				
T_{stg}			-40 ... 125	°C
V_{isol}	ac; 50Hz; r.m.s	1 min	3000	V
		1 s	3600	V

Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
Chip						
V_T	T_j = 25 °C, I_T = 150 A				1.6	V
$V_{T(TO)}$	T_j = 130 °C				0.9	V
r_T	T_j = 130 °C				5	mΩ
I_{DD};I_{RD}	T_j = 130 °C, V_{RD}=V_{RRM}				20	mA
t_{gd}	T_j = 25 °C, I_G = 1 A, di_G/dt = 1 A/µs			1		µs
t_{gr}	V_D = 0.67 * V_{DRM}			2		µs
t_q	T_j = 130 °C			150		µs
I_H	T_j = 25 °C				200	mA
I_L	T_j = 25 °C, R_G = 33 Ω				600	mA
V_{GT}	T_j = 25 °C, d.c.		3			V
I_{GT}	T_j = 25 °C, d.c.		150			mA
V_{GD}	T_j = 130 °C, d.c.				0.25	V
I_{GD}	T_j = 115 °C, d.c.		6			mA
$Rth_{(j-s)}$	continuous DC	per thyristor				K/W
$Rth_{(j-s)}$		per module				K/W
$Rth_{(j-s)}$	sin. 180°	per thyristor				K/W
$Rth_{(j-s)}$		per module			0.32	K/W
$Rth_{(j-s)}$	rec. 120°	per thyristor				K/W
$Rth_{(j-s)}$		per module				K/W
Module						
$R_{th(c-s)}$						K/W
						K/W
M_s	to heatsink		2.25		2.5	Nm
M_t						Nm
a						m/s^2
w				75		g
Temperature Sensor						
R_{100}	T_r = 100 °C, tolerance = 3 %			1670		Ω
$B_{100/125}$	R(T)=1000Ω[1+A(T-25°C)+B(T-25°C)^2], A = 7.635*10^{-3} °C^{-1}, B = 1.731*10^{-5} °C^{-2}			3550 ± 2%		K

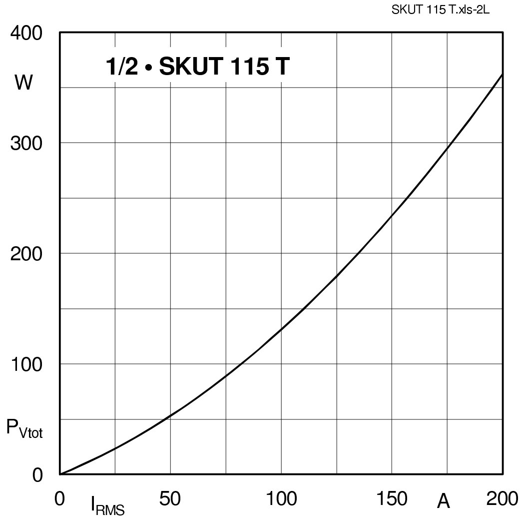


Fig. 2: Power dissipation per thyristor vs r.m.s. current

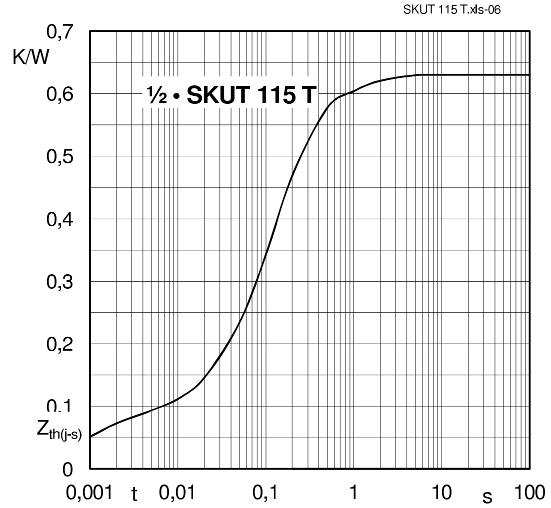


Fig. 6: Transient thermal impedance Zth(j-s)

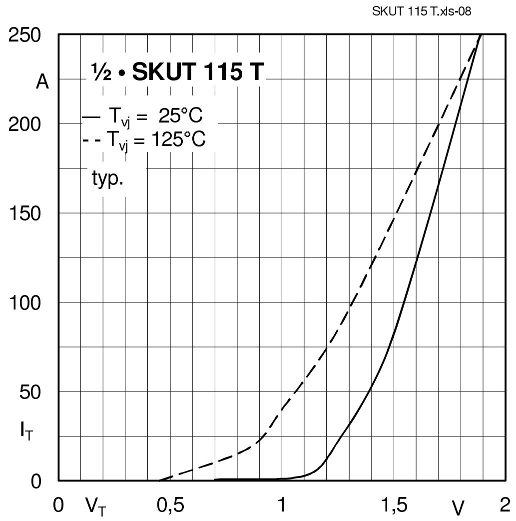


Fig. 8: On state characteristics

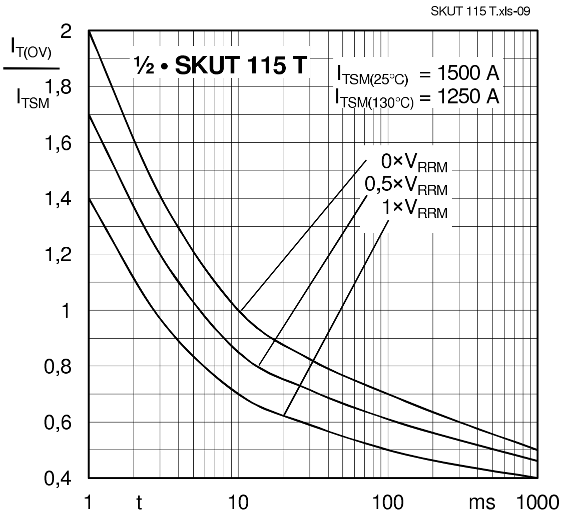


Fig. 9: Surge overload current vs. time

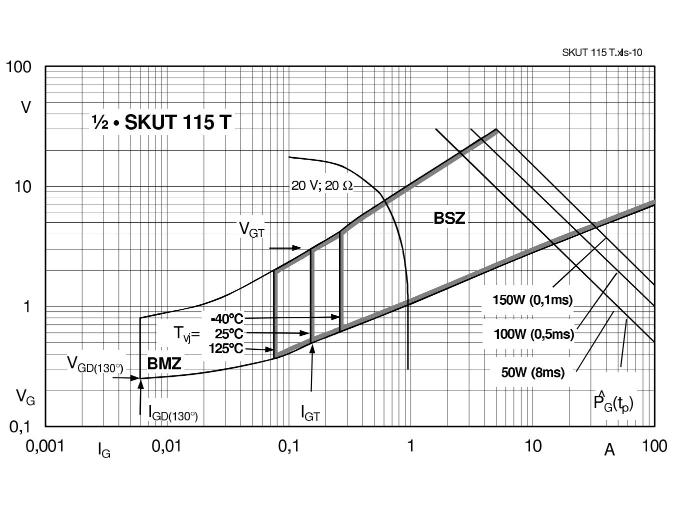


Fig. 10: Gate trigger characteristic

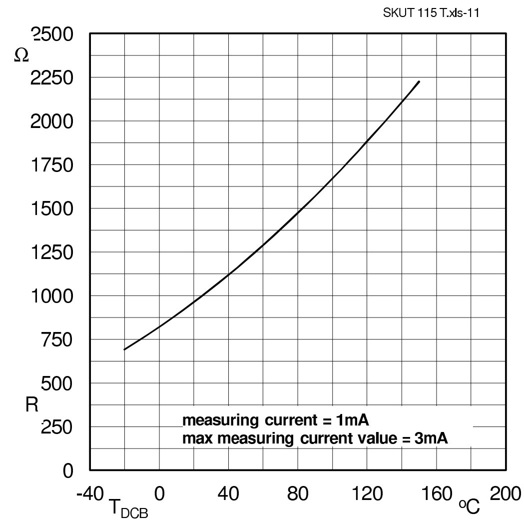
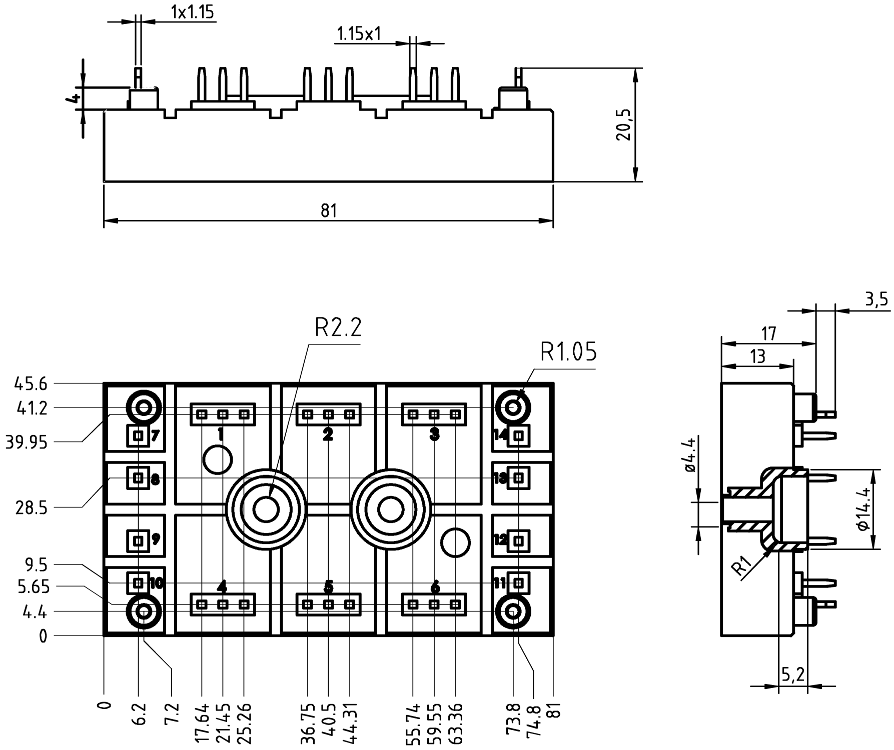


Fig.11: Temperature sensor characteristic



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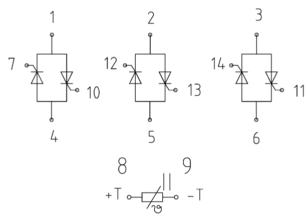

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This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our staff.