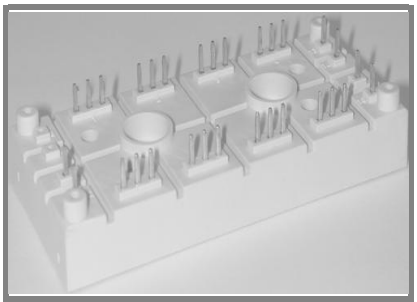
SKDH 116/.. -L100



SEMIPONT™ 6

3-Phase Bridge Rectifier + IGBT braking chopper

SKDH 116/.. -L100

Preliminary Data

Features

- Compact design
- Two screws mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- High surge currents
- Up to 1600V reverse voltage
- UL recognized, file no. E 63 532

Typical Applications

- DC drives
- Controlled filed rectifiers for DC motors
- Controlled battery charger

DH

V_{RSM} V	V_{RRM}, V_{DRM} V	I_D = 110 A (maximum value for continuous operation) (T_s = 80 °C)
1300	1200	SKDH 116/12-L100
1700	1600	SKDH 116/16-L100

Absolute Maximum Ratings		T_s = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
Bridge - Rectifier			
I_D	T_s = 80 °C; inductive load	110	A
I_{FSM}/I_{TSM}	t_p = 10 ms; sin 180 ; T_{jmax}	950	A
i^2t	t_p = 10 ms; sin 180 ; T_{jmax}	4500	A^2s
IGBT - Chopper			
V_{CES}/V_{GES}		1200 / 20	V
I_C	T_s = 25 (70) °C	125 (100)	A
I_{CM}	t_p = 1 ms; T_s = 25 (70) °C	250 (200)	A
Freewheeling - CAL Diode			
V_{RRM}		1200	V
I_F	T_s = 25 (70) °C	130 (90)	A
I_{FM}	t_p = 1 ms; T_s = 25 (70) °C	240 (180)	A
T_{vj}	Diode & IGBT (Thyristor)	- 40 ... + 150 (-40...+ 125)	°C
T_{stg}		- 40 ... + 125	°C
T_{solder}	terminals, 10 s	260	°C
V_{isol}	a.c. (50) Hz, RMS 1 min. / 1 s	3000 / 3600	V

Characteristics		T_s = 25 °C, unless otherwise specified			
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
Diode - Rectifier					
V_{TO} / r_t	T_j = 125 °C		0,8 / 7		V / mΩ
$R_{th(j-s)}$	per diode			1	K/W
Thyristor - Rectifier					
$V_{F(TO)}$ / r_t	T_j = 125 °C		1,1 / 6		V / mΩ
$R_{th(j-s)}$	per Thyristor			0,85	K/W
I_{GD}	T_j = 125 °C; d.c.		5		mA
V_{GT} / I_{GT}	T_j = 25 °C			3 / 150	V / mA
I_H/I_L	T_j = 25 °C		250 / 600		mA
$(dv/dt)_{cr}$	T_j = 125 °C			1000	V/µs
$(di/dt)_{cr}$	T_j = 125 °C			100	A/µs
IGBT - Chopper					
$V_{CE(sat)}$	I_C = 100 A, T_j = 25 °C; V_{GE} = 15 V		2,35		V
$R_{th(j-s)}$	per IGBT			0,3	K/W
$t_{d(on)}$ / t_r	valid for all values:		114 / 94,5		ns
$t_{d(off)}$ / t_f	V_{CC} = 600 V; V_{GE} = 15 V; I_C = 120 A; T_j = 125 °C;		845,4 / 94,5		ns
$E_{on}+E_{off}$	T_j = 125 °C; R_G = 16 Ω; inductive load		24,4		mJ
CAL - Diode - Freewheeling					
$V_{T(TO)}$ / r_t	T_j = 125 °C		1 / 8	1,2 / 11	V / mΩ
$R_{th(j-s)}$	per diode			0,6	K/W
I_{RRM}	valid for all values:		65		A
Q_{rr}	I_F = 100 A; V_R = - -600 V; dI_F/dt = - -1000 A/µs		15		µC
E_{off}	V_{GE} = 0 V; T_j = 125 °C				mJ
Temperature Sensor					
R_{TS}	T = 25 (100) °C;		1000 (1670)		Ω
Mechanical data					
M_S	mounting Torque	2,55		3,45	Nm

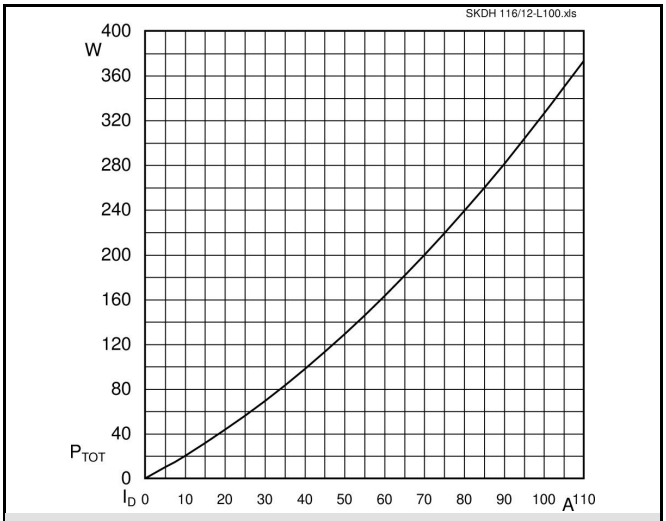


Fig. 1 Power dissipation per module vs. output current

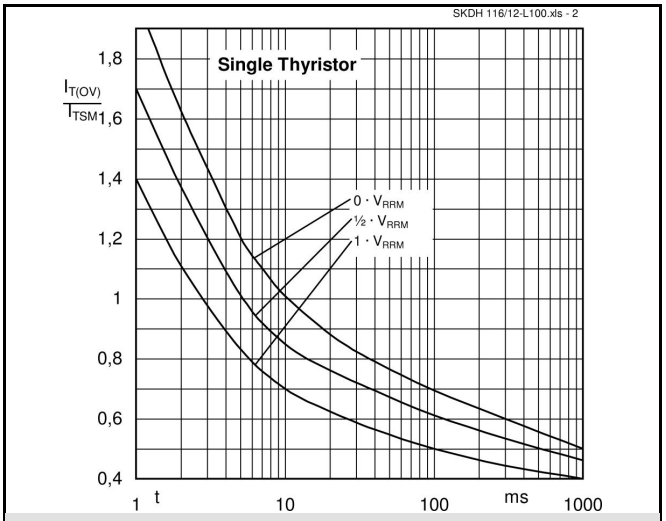


Fig. 2 Surge overload current vs. time

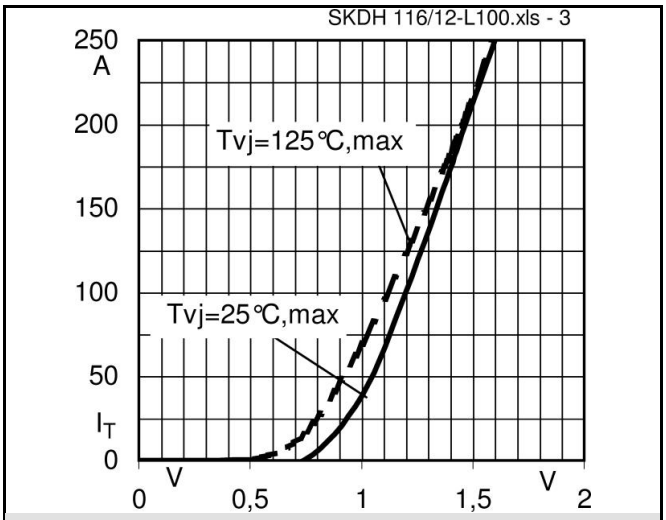


Fig. 3 Forward characteristic of single rectifier diode

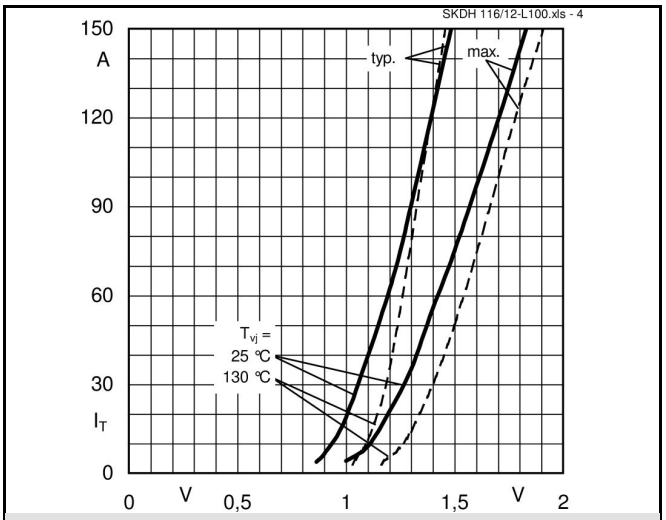


Fig. 4 Forward characteristic of single thyristor

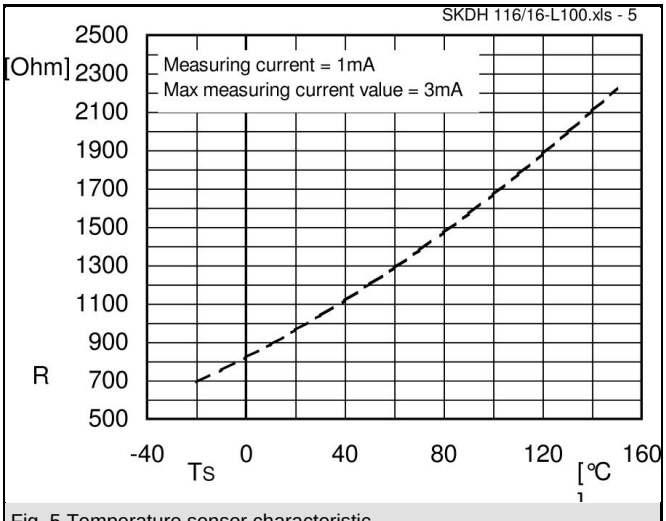


Fig. 5 Temperature sensor characteristic

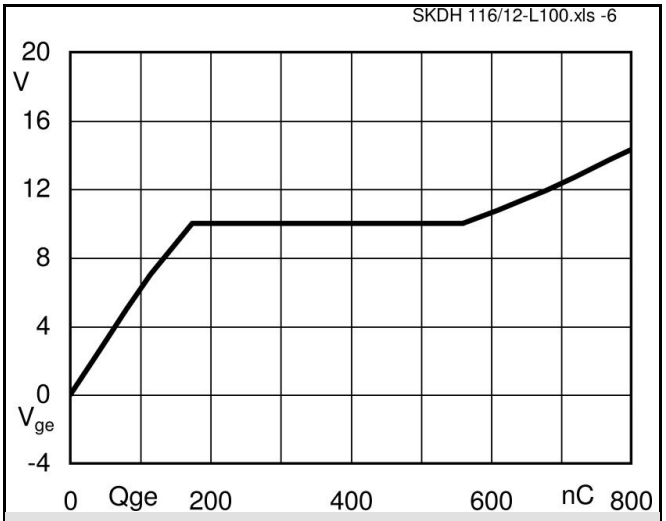


Fig. 6 Typ gate charge characteristic

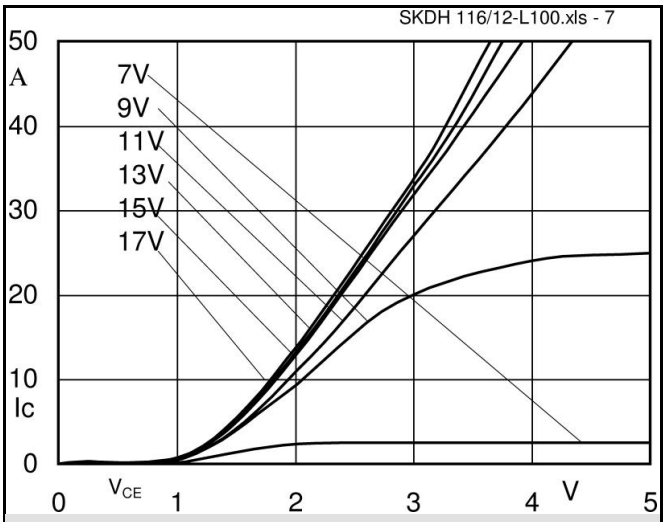


Fig.7 Output Igbt characteristic Ic=f(Vce) Tj=25°C

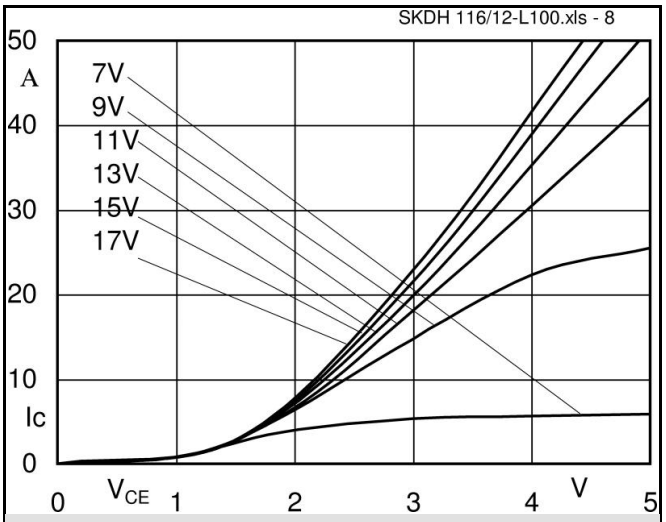


Fig. 8 Output Igbt characteristic Ic=f(Vce) Tj=125°C

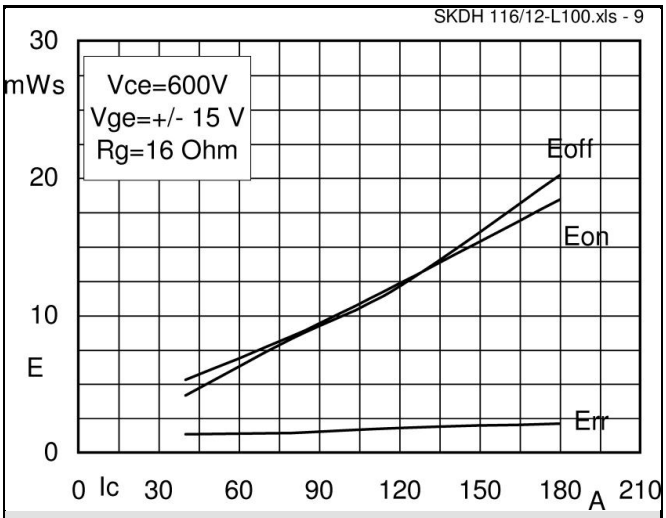


Fig. 9 Turn-on/-off energy=f(Ic)

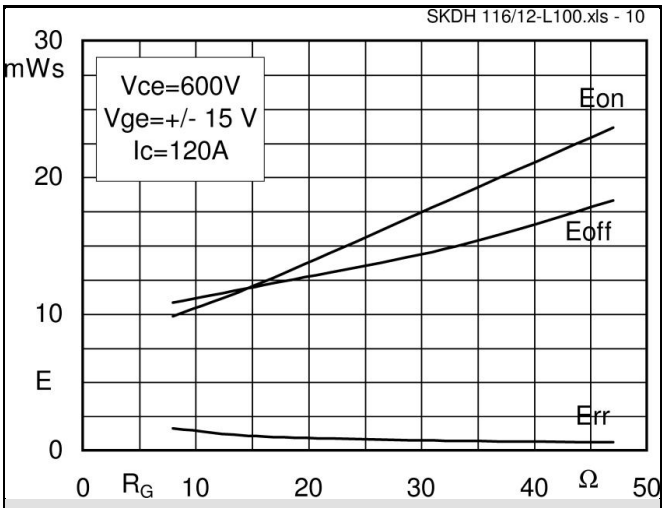


Fig. 10 turn-on/-off energy=f(Rg)

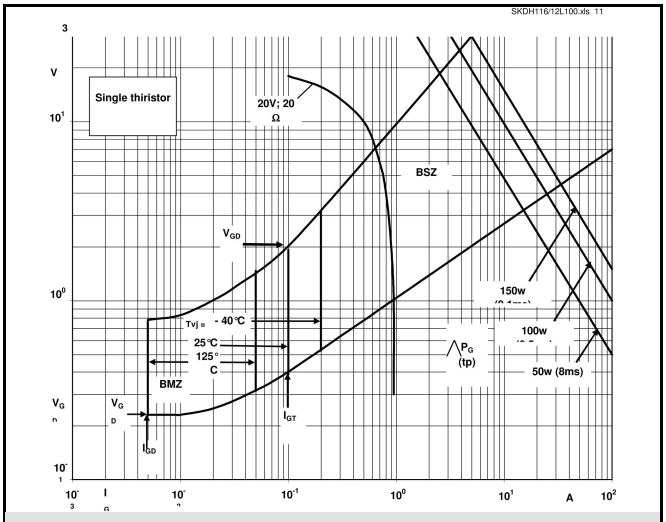


Fig. 11 Gate trigger characteristic of a single thyristor

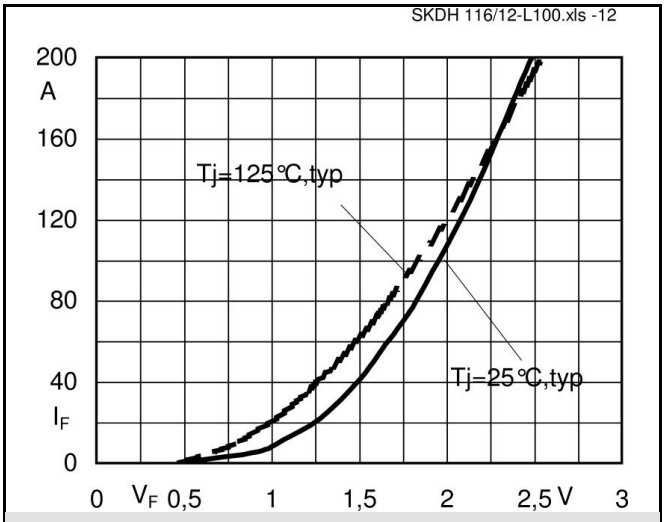
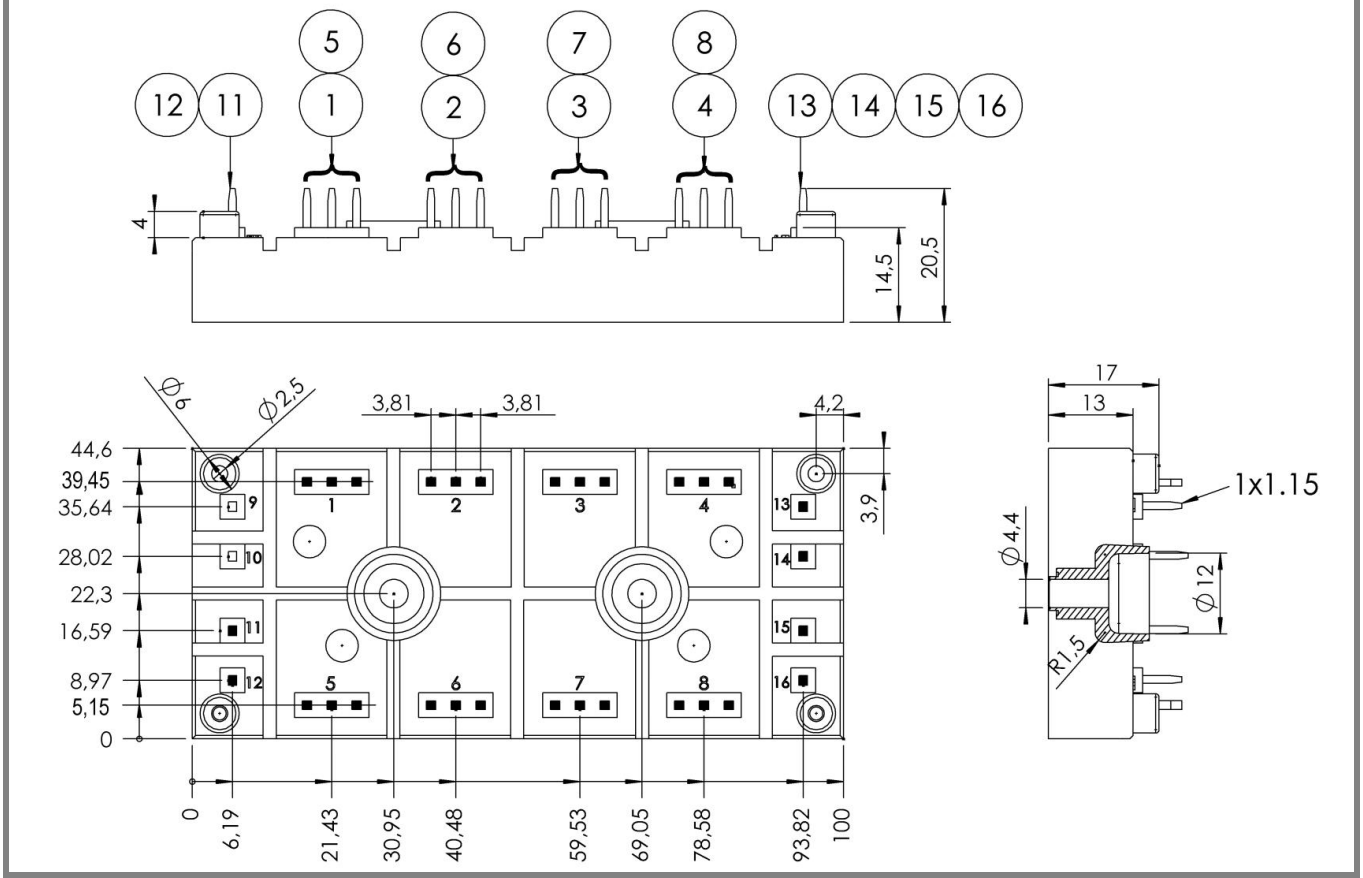


Fig. 12 Freewheeling diode forward characteristic

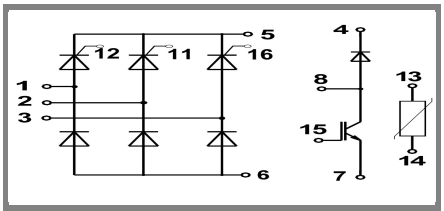
SKDH 116/.. -L100

UL recognized
File n° E63 532

Dimensions in mm



Case G 59



Case G 59

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

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