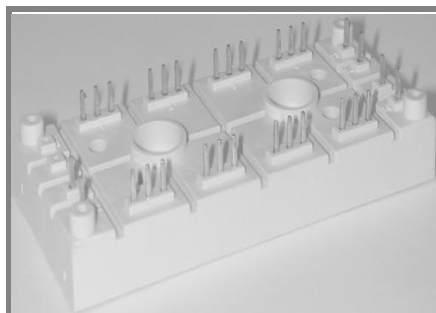


SKD 146/..-L100



SEMIPONT™ 6

3-Phase Bridge Rectifier + IGBT braking chopper

SKD 146/..-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

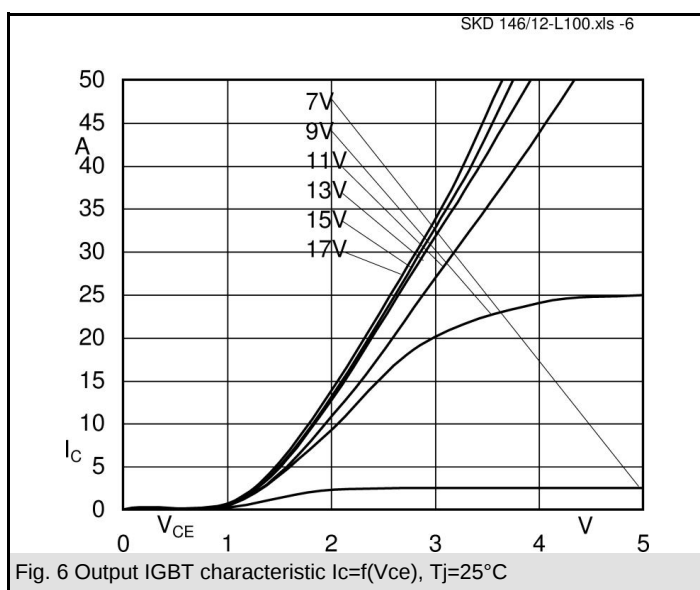
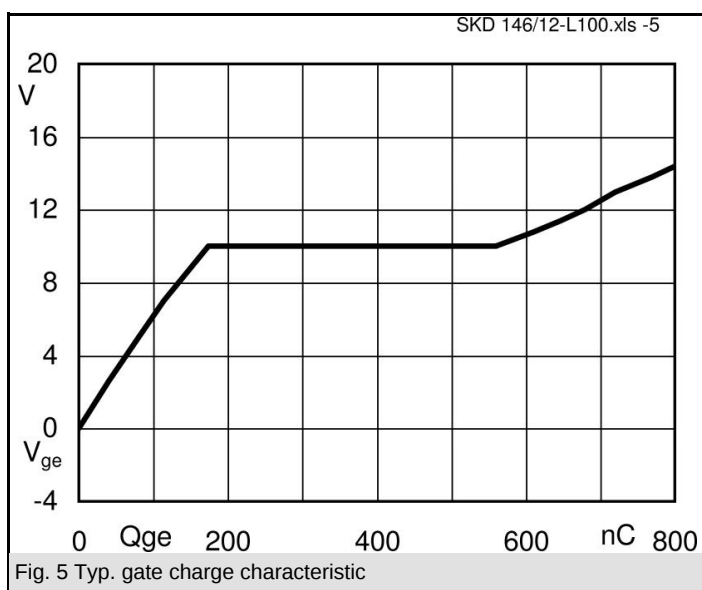
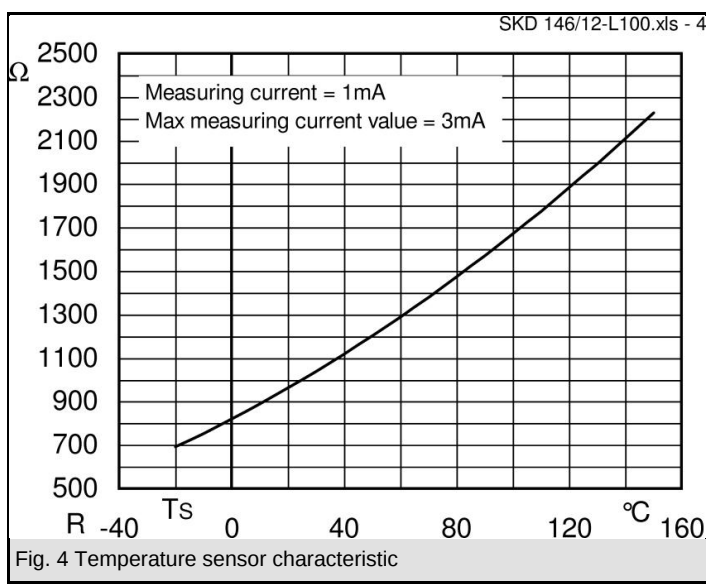
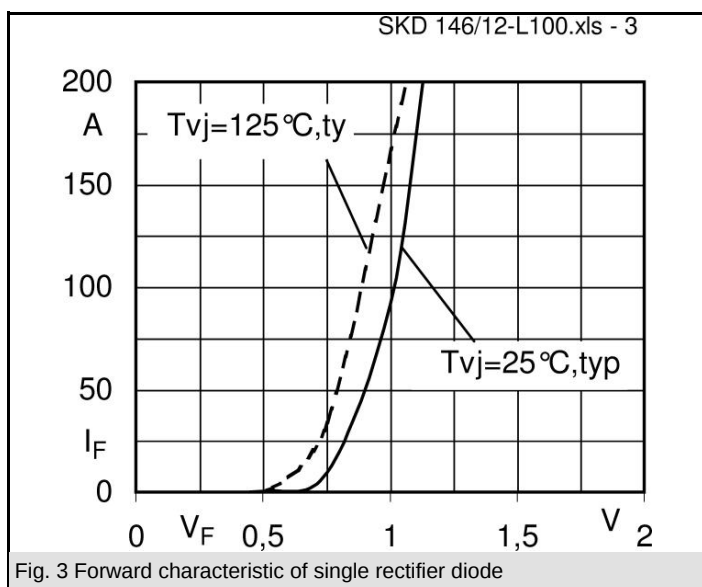
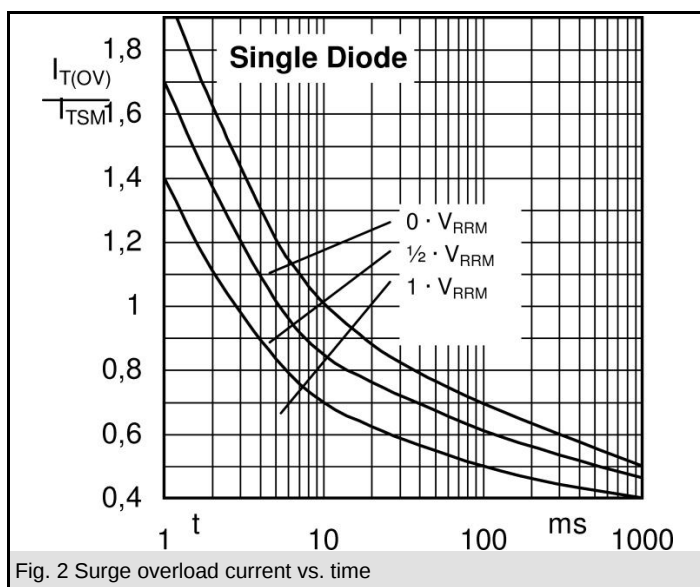
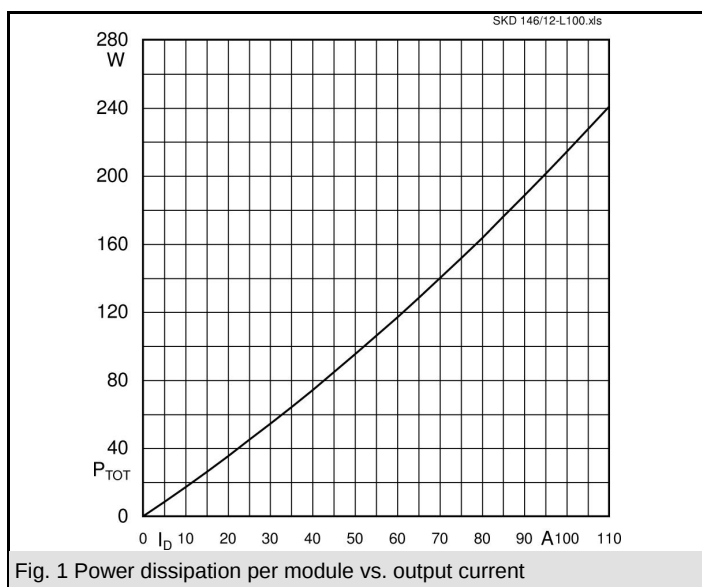
- DC drives
- Controlled filed rectifiers for DC motors
- Controlled battery charger

V_{RSM} V	V_{RRM}, V_{DRM} V	$I_D = 140$ A (maximum value for continuous operation) ($T_s = 85$ °C)
1300	1200	SKD 146/12-L100
1700	1600	SKD 146/16-L100

Absolute Maximum Ratings		$T_s = 25$ °C, unless otherwise specified	
Symbol	Conditions	Values	Units
Bridge - Rectifier			
I_D	$T_s = 85$ °C; inductive load	140	A
I_{FSM}/I_{TSM}	$t_p = 10$ ms; $\sin 180^\circ$; T_{jmax}	1250	A
i^2t	$t_p = 10$ ms; $\sin 180^\circ$; T_{jmax}	7800	A ² s
IGBT - Chopper			
V_{CES}/V_{GES}	$T_s = 25$ (70) °C	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}	$T_s = 25$ (70) °C	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 (0 ... + 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 / 4	V / mΩ
$R_{th(j-s)}$	per diode			0,8 K/W
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:		113,8 / 94,4	ns
$t_{d(off)} / t_f$	$V_{CC} = 600$ V; $V_{GE} = 15$ V; $I_C = 120$ A; $T_j = 125$ °C;		845,4 / 94,4	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	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

D



SKD 146/12-L100.xls -7

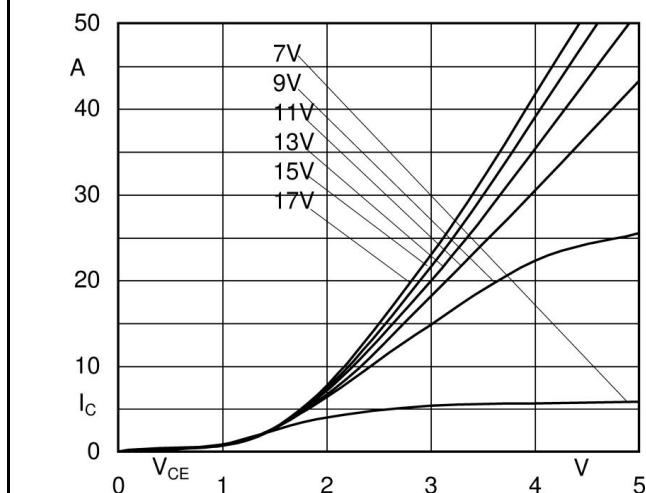


Fig. 7 Output IGBT characteristic $I_c=f(V_{ce})$, $T_j=125^\circ\text{C}$

SKD 146/12-L100.xls - 8

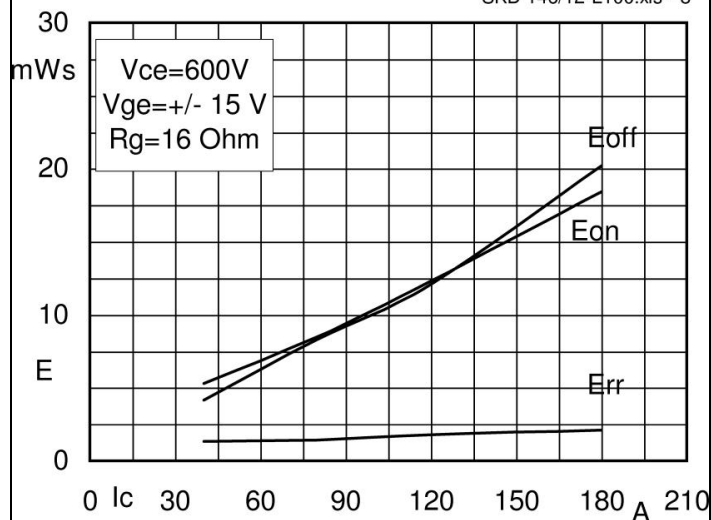


Fig. 8 Turn-on/-off energy $=f(I_c)$

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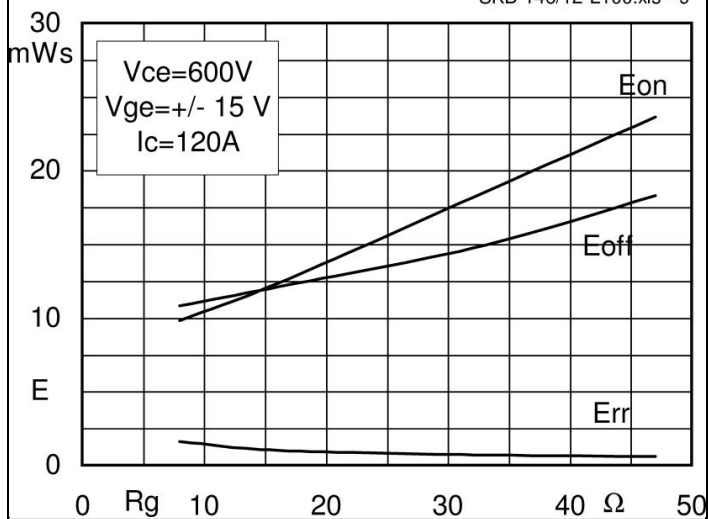


Fig. 9 Turn-on/-off energy $=f(R_g)$

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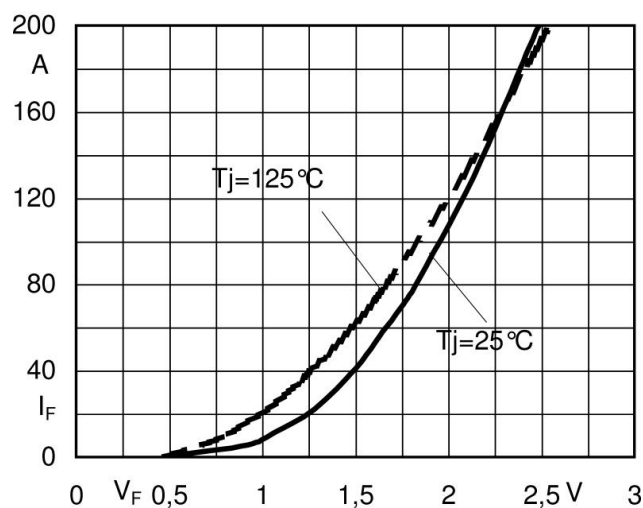
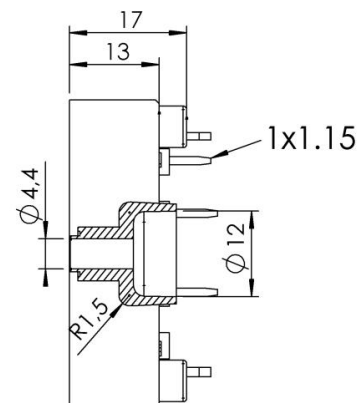
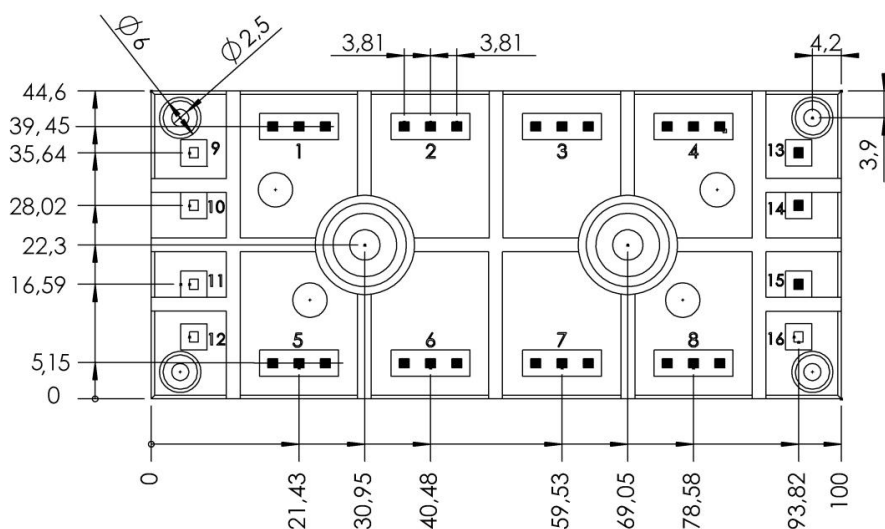
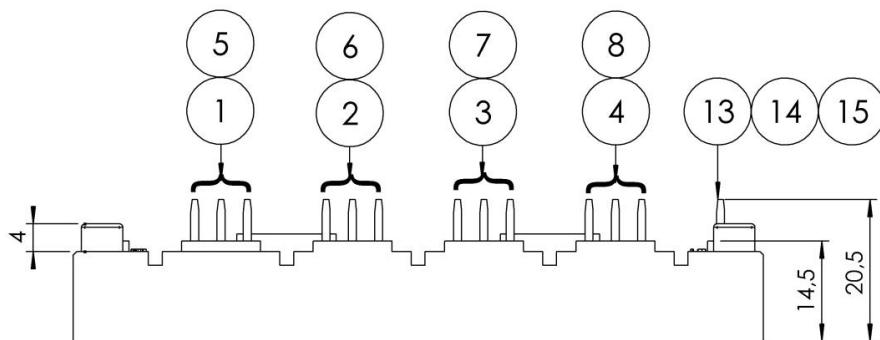


Fig. 10 Diode forward characteristic

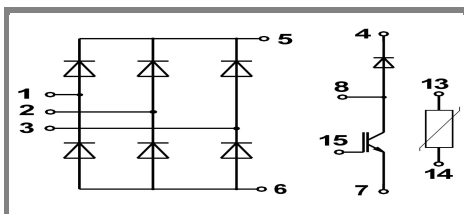
SKD 146/..-L100

UL recognized
File n° E63 532

Dimensions in mm



Case G 60



Case G 60

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

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