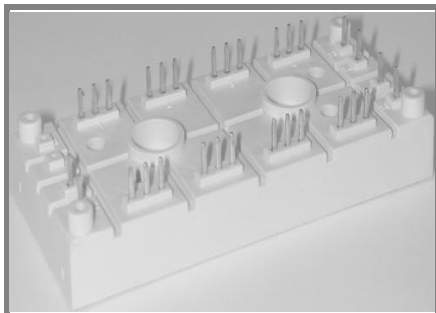


SKD 146/..-L100



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

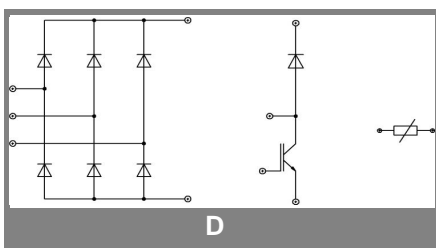
Typical Applications*

- 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}		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 (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	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



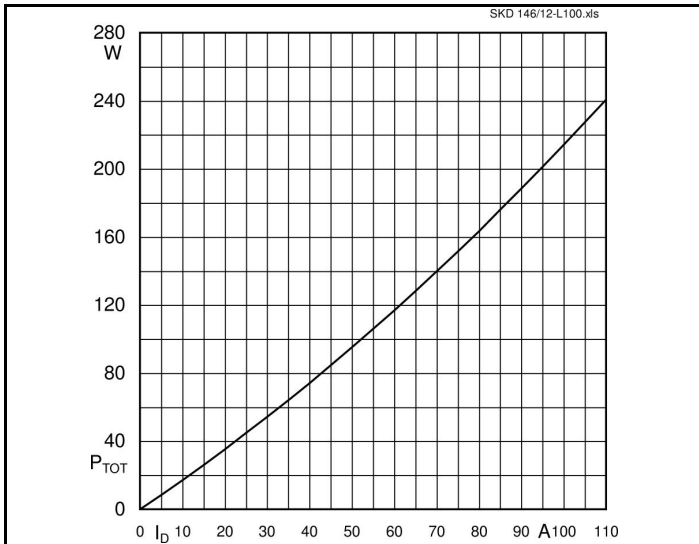


Fig. 1 Power dissipation per module vs. output current

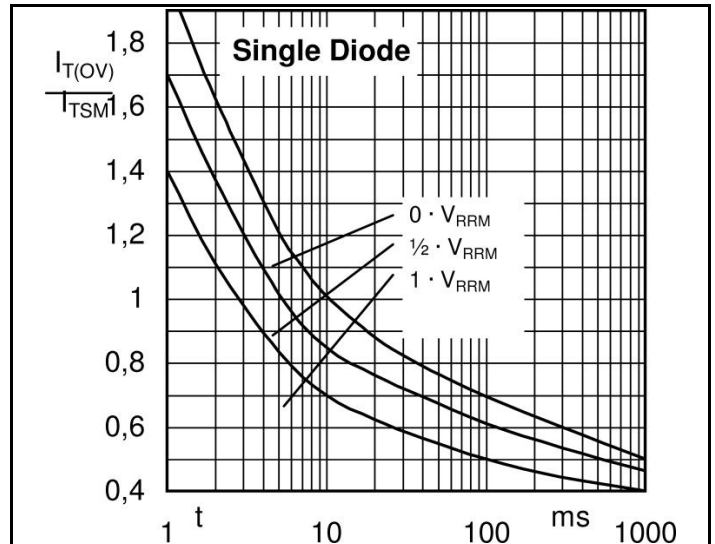


Fig. 2 Surge overload current vs. time

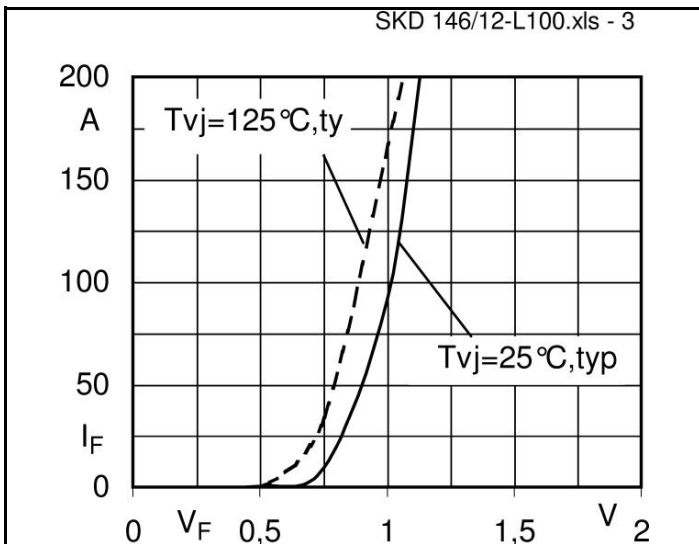


Fig. 3 Forward characteristic of single rectifier diode

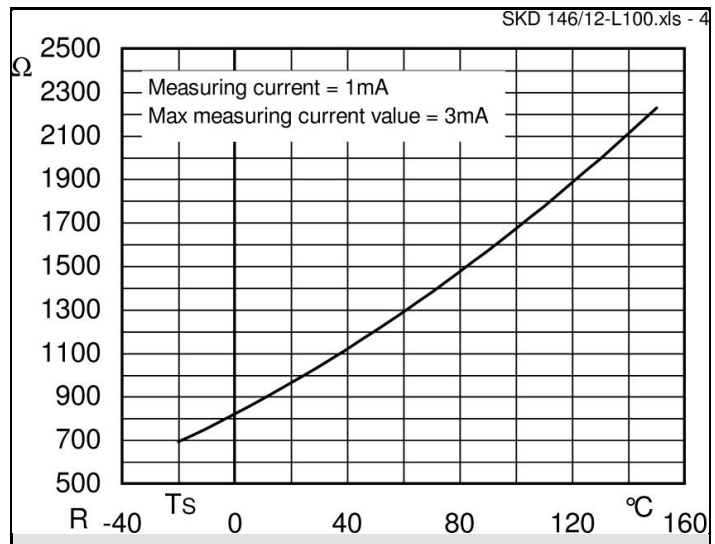


Fig. 4 Temperature sensor characteristic

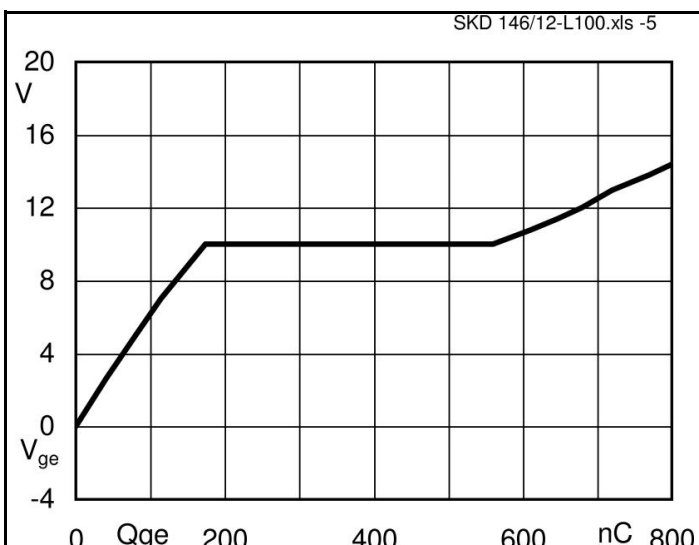


Fig. 5 Typ. gate charge characteristic

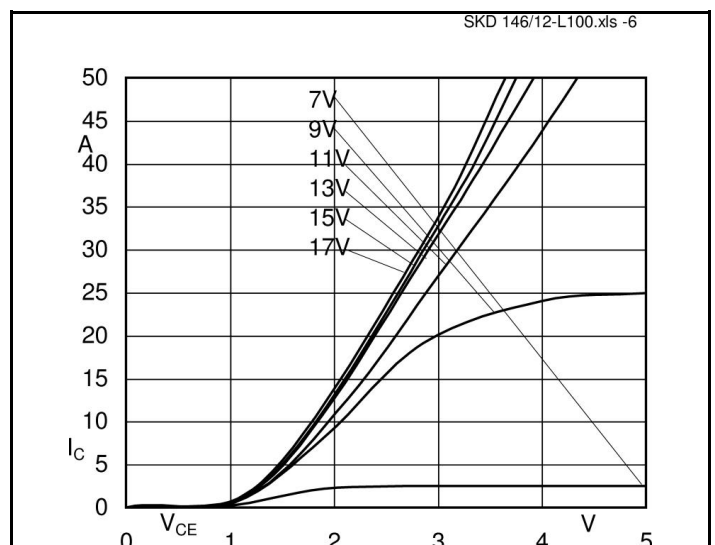
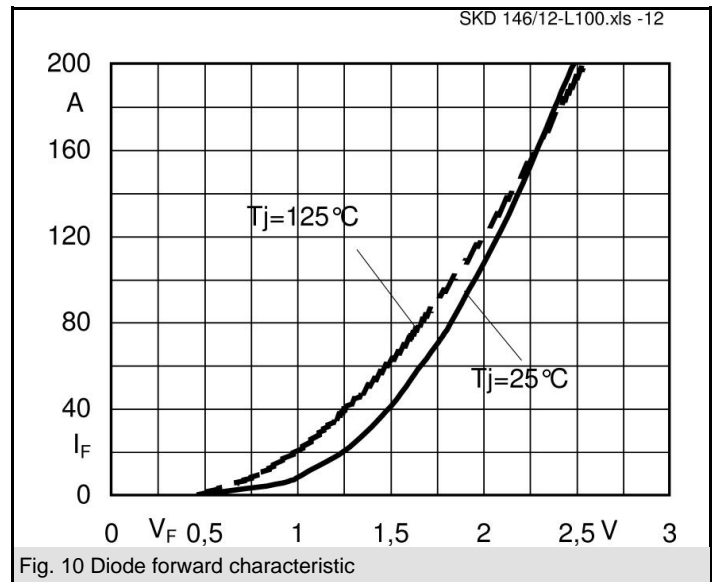
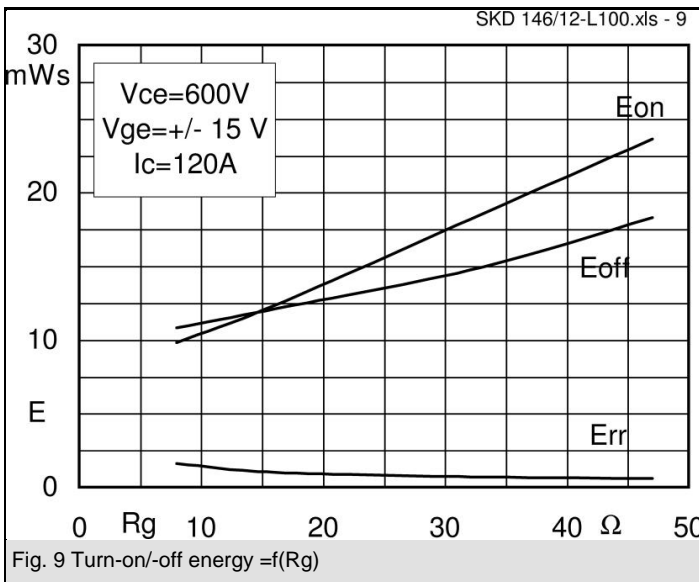
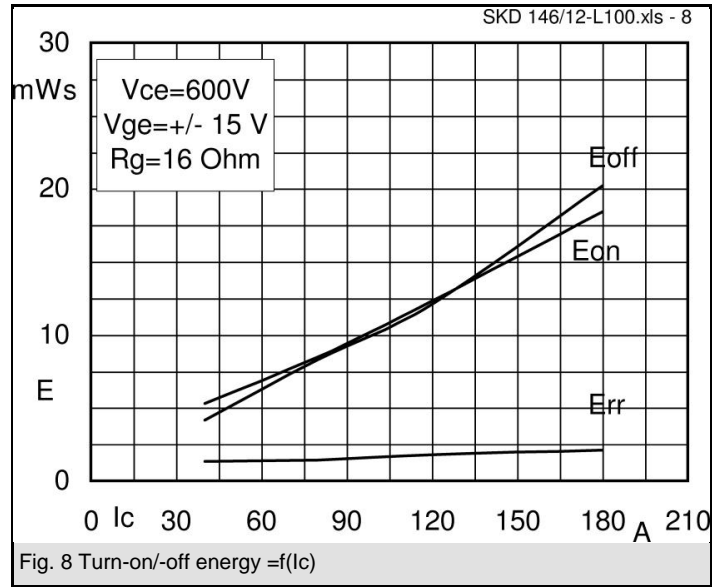
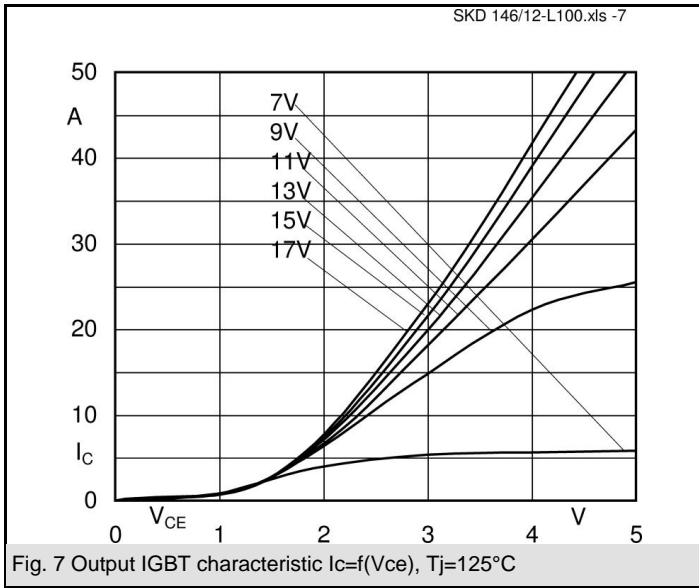


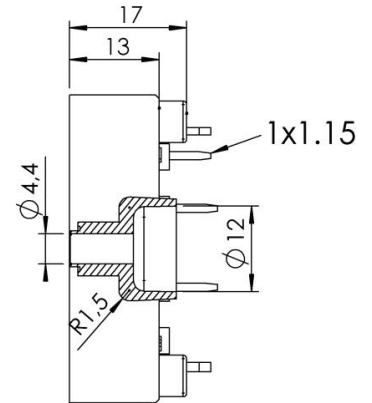
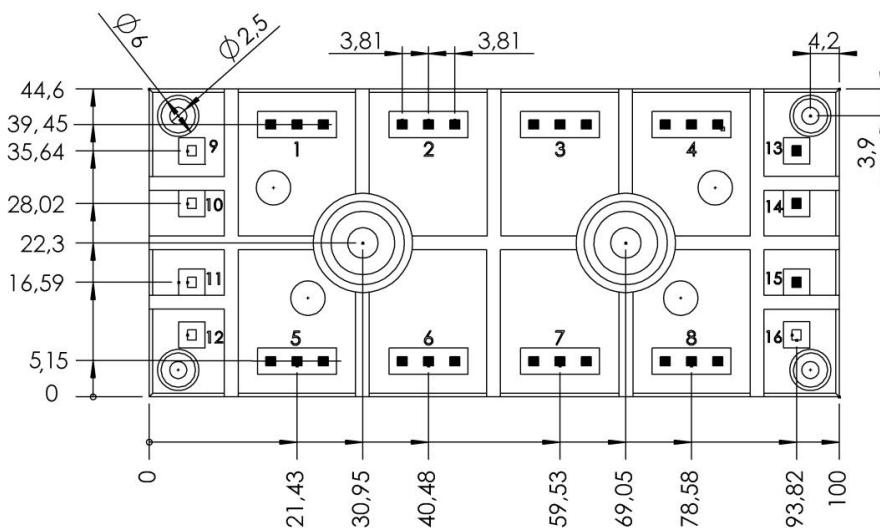
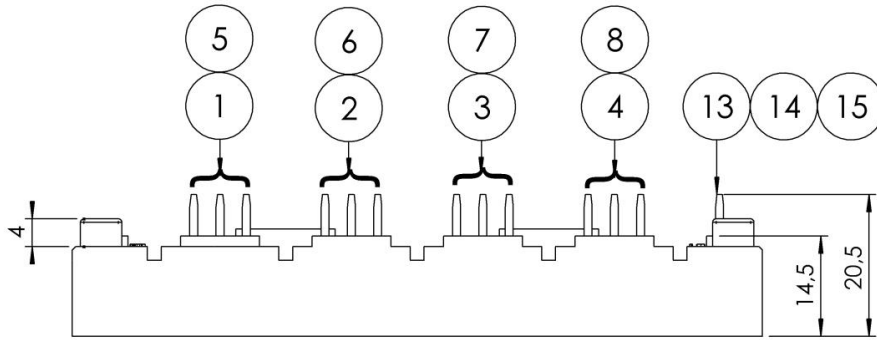
Fig. 6 Output IGBT characteristic $I_c=f(V_{ce})$, $T_j=25^\circ\text{C}$



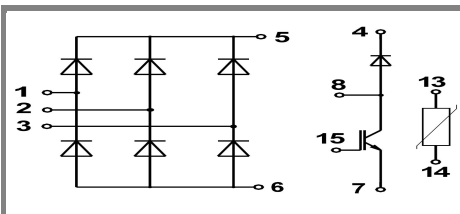
SKD 146/..-L100

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.

* 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 personal.