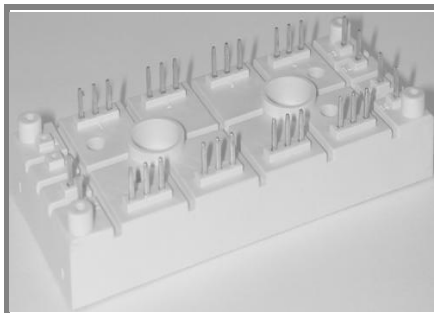


# SKD 116/..L100



**SEMIPONT™ 6**

## 3-Phase Bridge Rectifier + IGBT braking chopper

**SKD 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

$V_{RSM}$ V	$V_{RRM}, V_{DRM}$ V	$I_D = 110$ A (maximum value for continuous operation) ( $T_s = 85$ °C)
1300	1200	SKD 116/12-L100
1700	1600	SKD 116/16-L100

Absolute Maximum Ratings		$T_s = 25$ °C, unless otherwise specified		
Symbol	Conditions	Values	Units	
<b>Bridge - Rectifier</b>				
$I_D$	$T_s = 85$ °C; inductive load	110	A	
$I_{FSM}/I_{TSM}$	$t_p = 10$ ms; $\sin 180^\circ$ ; $T_{jmax}$	1050	A	
$i^2t$	$t_p = 10$ ms; $\sin 180^\circ$ ; $T_{jmax}$	5500	A <sup>2</sup> s	
<b>IGBT - Chopper</b>				
$V_{CES}/V_{GES}$	$T_s = 25$ (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	
<b>Freewheeling - CAL Diode</b>				
$V_{RRM}$	$T_s = 25$ (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 (-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
<b>Diode - Rectifier</b>					
$V_{TO} / r_t$	$T_j = 125$ °C	0,8 / 7			V / mΩ
$R_{th(j-s)}$	per diode			1	K/W
<b>IGBT - Chopper</b>					
$V_{CE(sat)}$	$I_C = 100$ 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 / 845,4			ns
$t_{d(off)} / t_f$	$V_{CC} = 600$ V; $V_{GE} = 15$ V; $I_C = 120$ A; $T_j = 125$ °C;	94,4 / 845,4			ns
$E_{on} + E_{off}$	$T_j = 125$ °C; $R_G = 16$ Ω; inductive load	24,4			mJ
<b>CAL - Diode - Freewheeling</b>					
$V_{T(TO)} / r_t$	$T_j = 125$ °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
<b>Temperature Sensor</b>					
$R_{TS}$	$T = 25$ (100) °C;	1000 (1670)			Ω
<b>Mechanical data</b>					
$M_S$	mounting Torque	2,55		3,45	Nm

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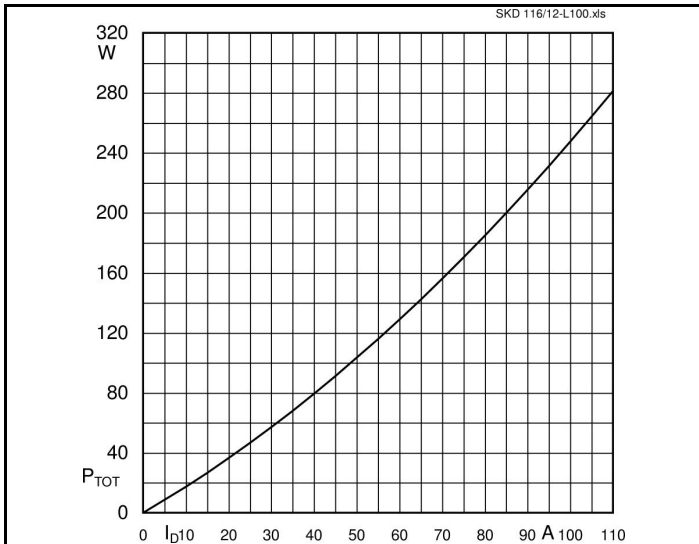


Fig. 1 Power dissipation per module vs. output current

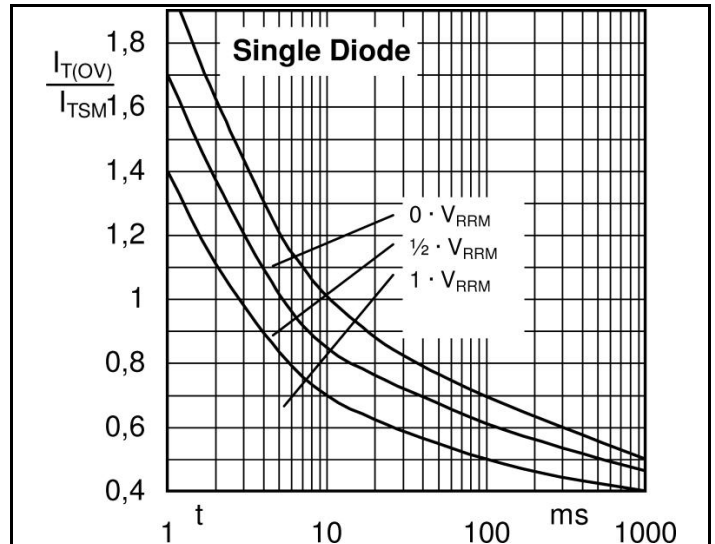


Fig. 2 Surge overload current vs. time

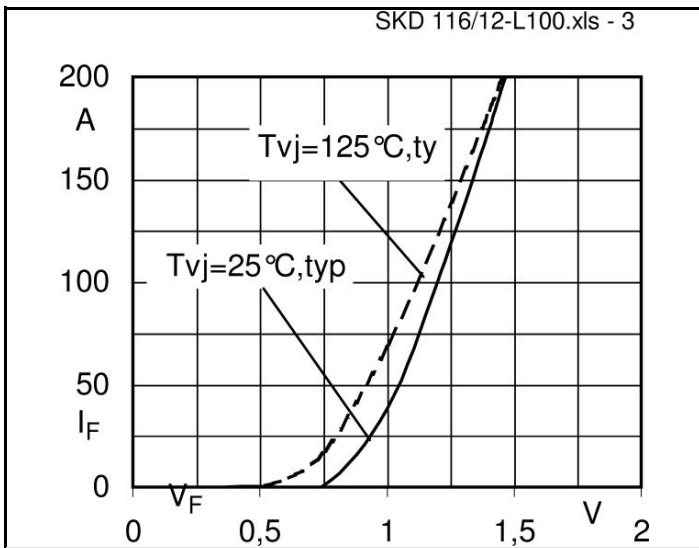


Fig. 3 Forward characteristic of single rectifier diode

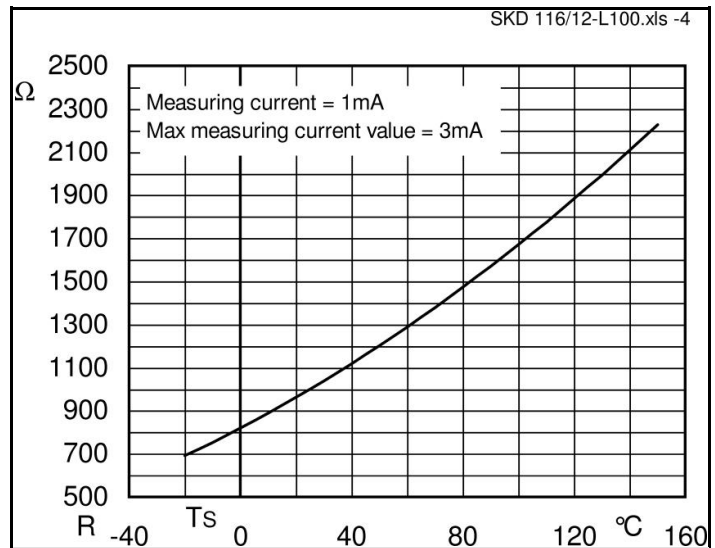


Fig. 4 Temperature sensor characteristic

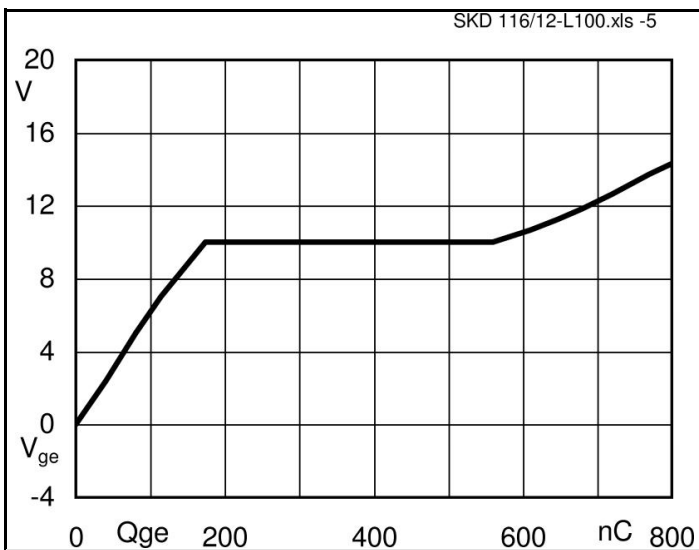


Fig. 5 Typ. gate charge characteristic

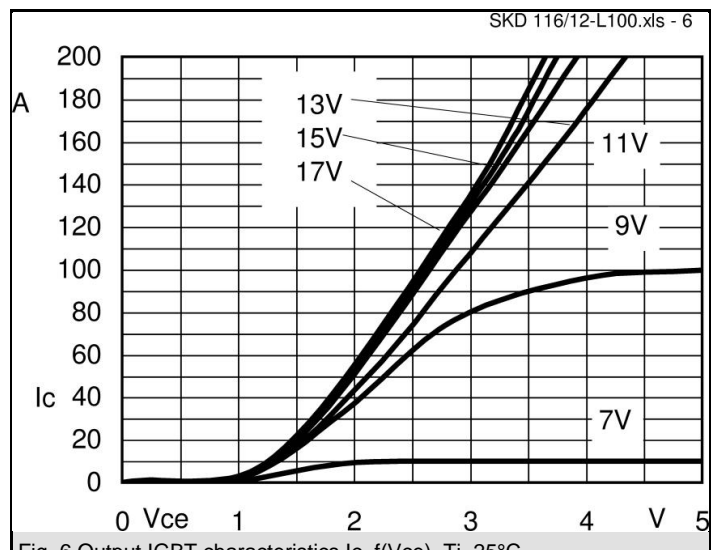
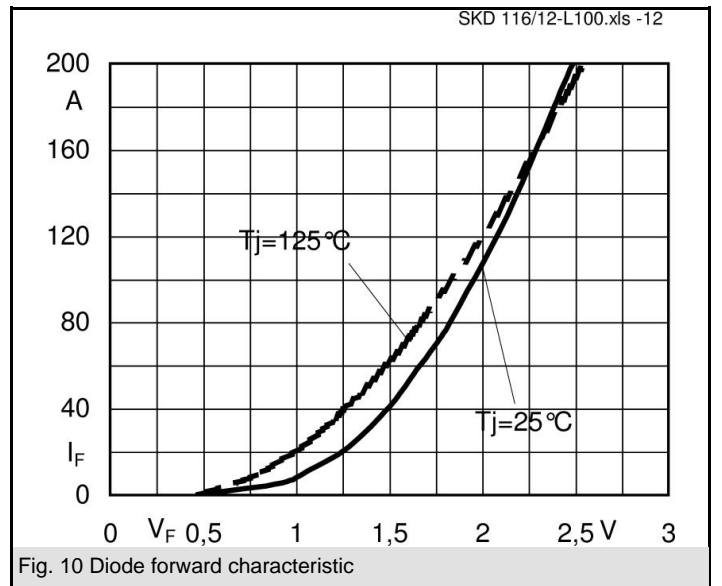
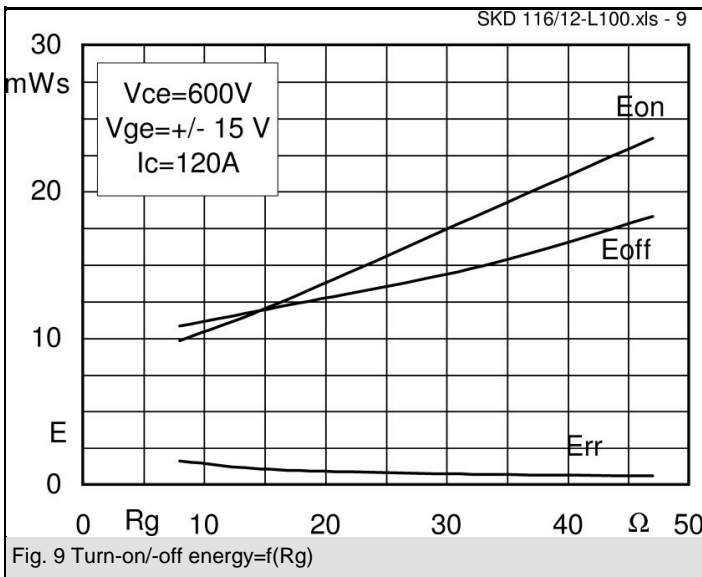
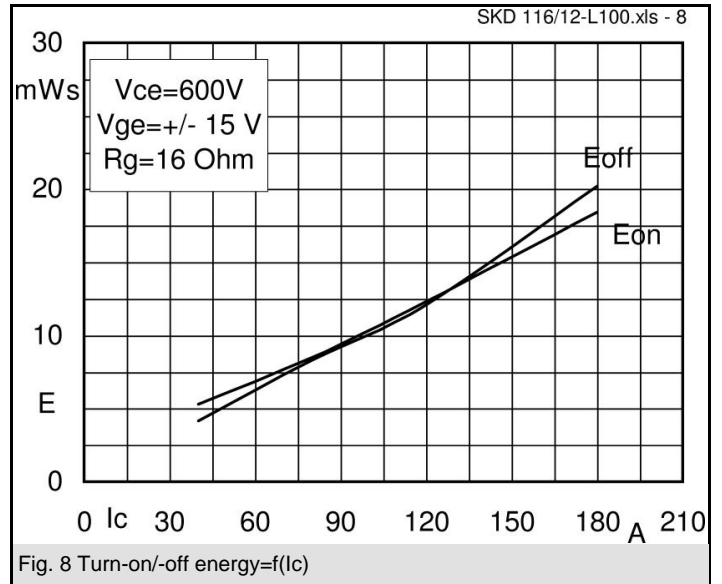
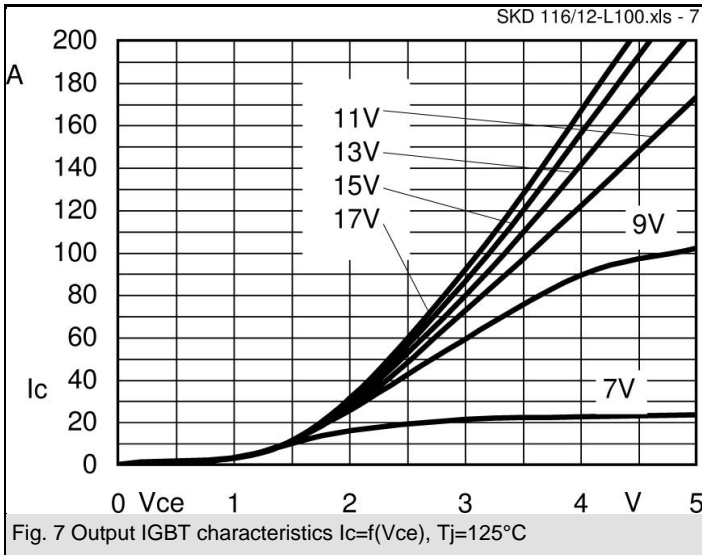


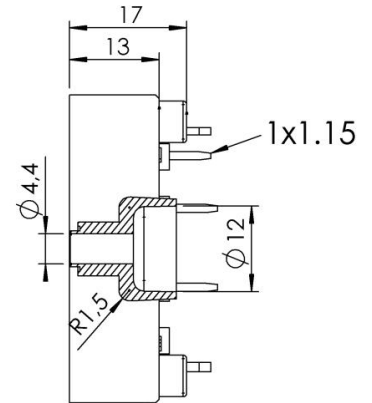
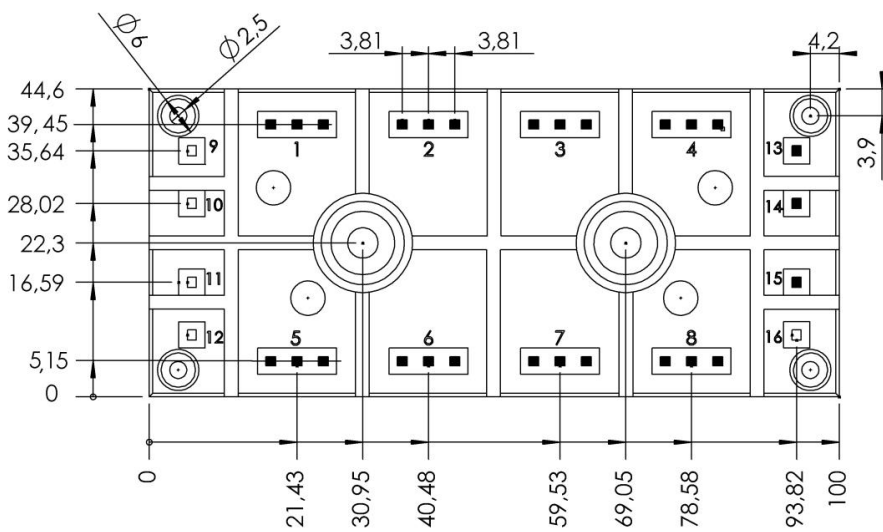
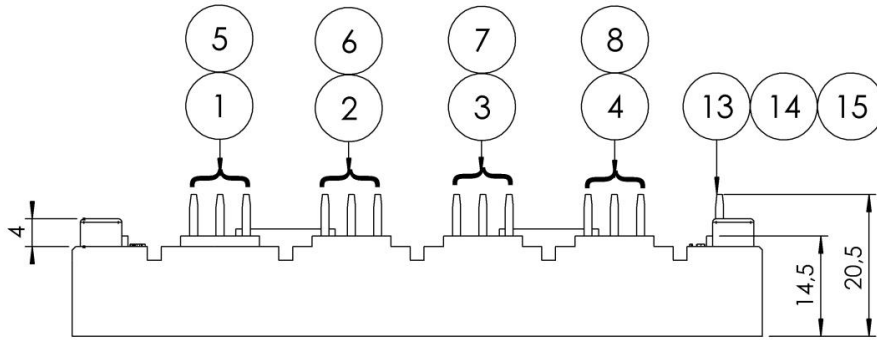
Fig. 6 Output IGBT characteristics  $I_c = f(V_{ce})$ ,  $T_j = 25^\circ\text{C}$



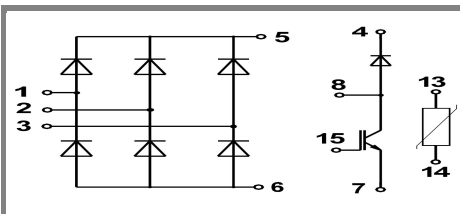
# SKD 116/..L100

UL recognized  
File n#176; 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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