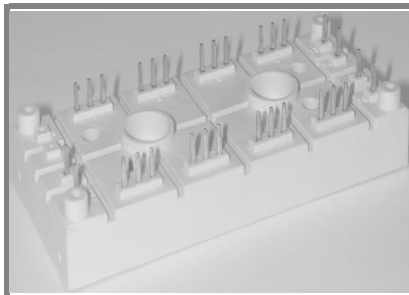


# SKDH 146/.. -L100



SEMIPONT™ 6

## 3-Phase Bridge Rectifier + IGBT braking chopper

SKDH 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) ( $T_s = 80$ °C)
1300	1200	SKDH 146/12-L100
1700	1600	SKDH 146/16-L100

Absolute Maximum Ratings		$T_s = 25$ °C, unless otherwise specified	
Symbol	Conditions	Values	Units
<b>Bridge - Rectifier</b>			
$I_D$	$T_s = 80$ °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 <sup>2</sup> s
<b>IGBT - Chopper</b>			
$V_{CES}/V_{GES}$		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
<b>Freewheeling - CAL Diode</b>			
$V_{RRM}$		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
<b>Diode - Rectifier</b>					
$V_{TO} / r_t$	$T_j = 125$ °C		0,8 / 4		V / mΩ
$R_{th(j-s)}$	per diode			0,8	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:		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;		845,5 / 94,5		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; $V_B = - -600$ 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



DH

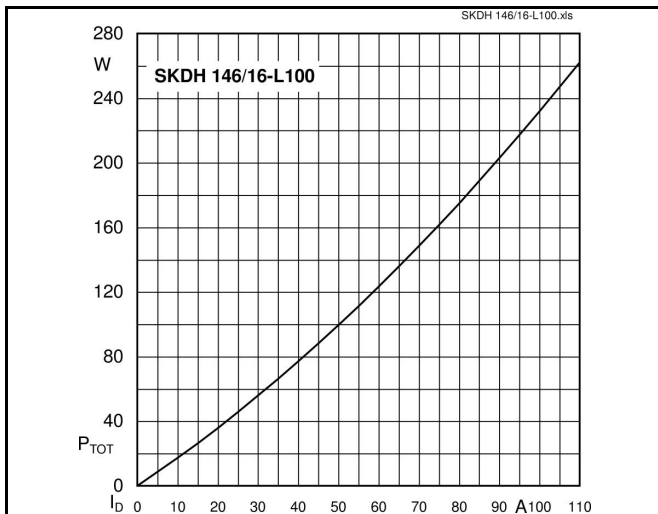


Fig. 1 Power dissipation per module vs. output current

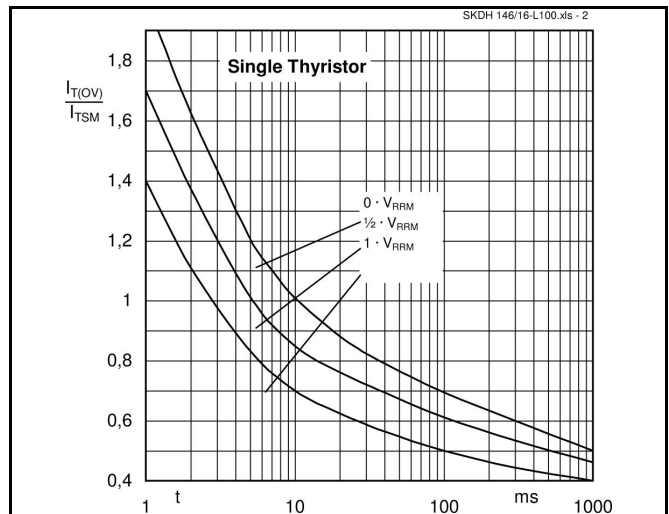


Fig. 2 Surge overload current vs. time

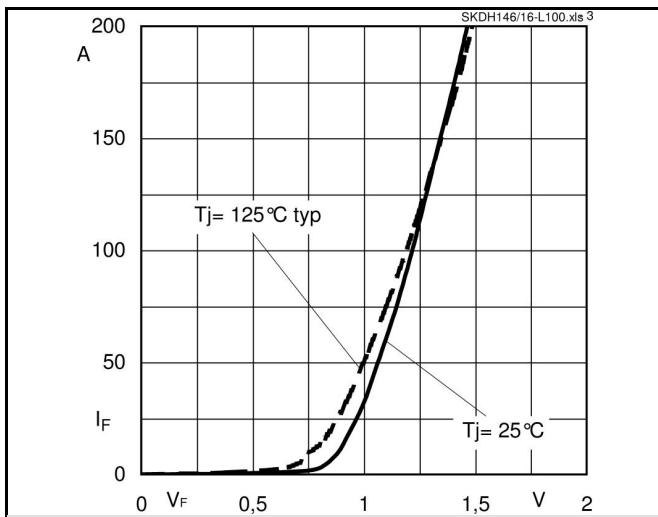


Fig. 3 Forward characteristic of single rectifier diode

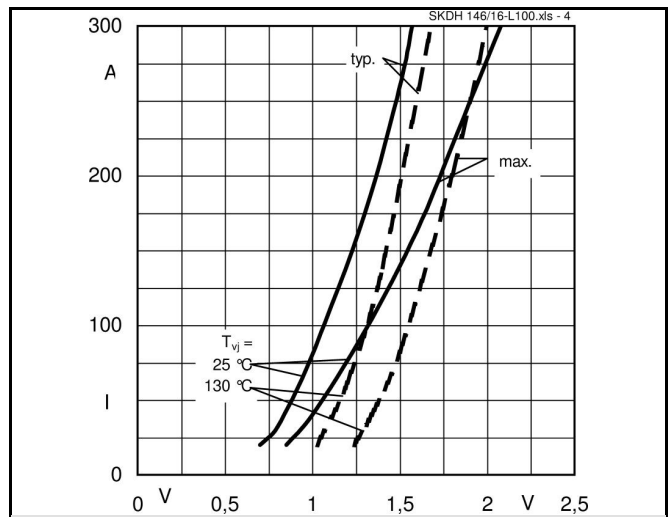


Fig. 4 Forward characteristic of single thyristor

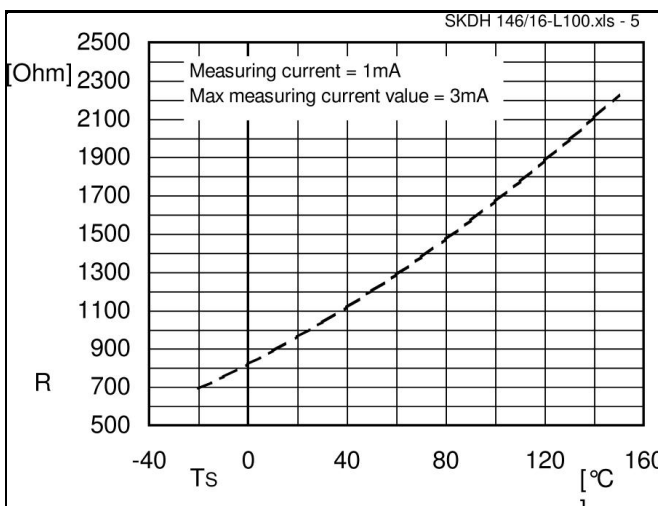
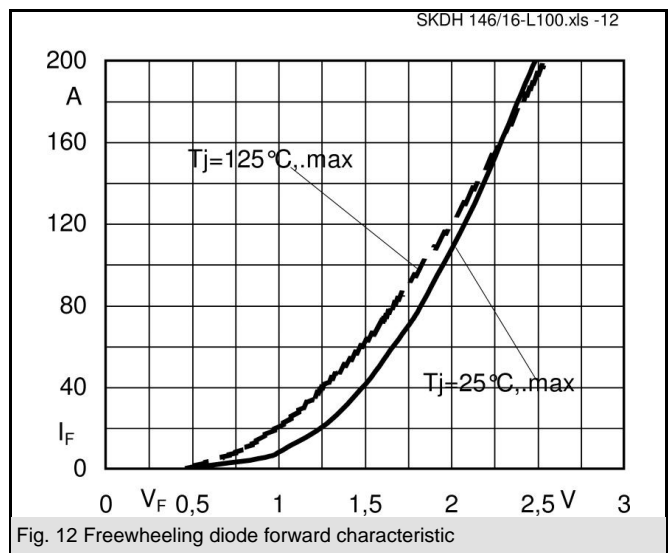
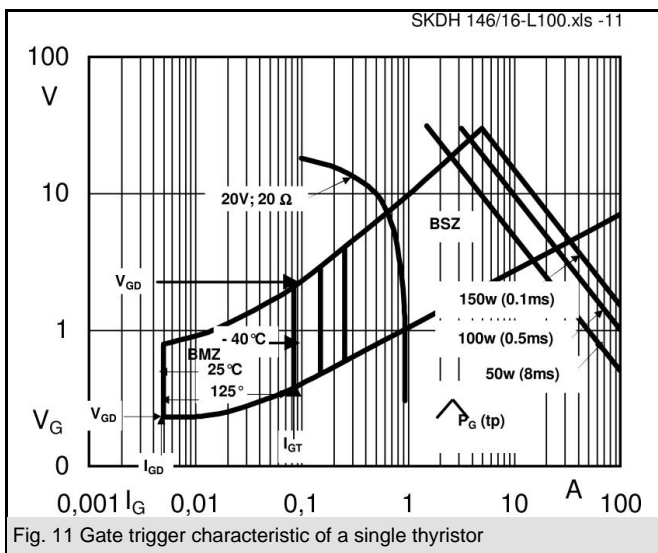
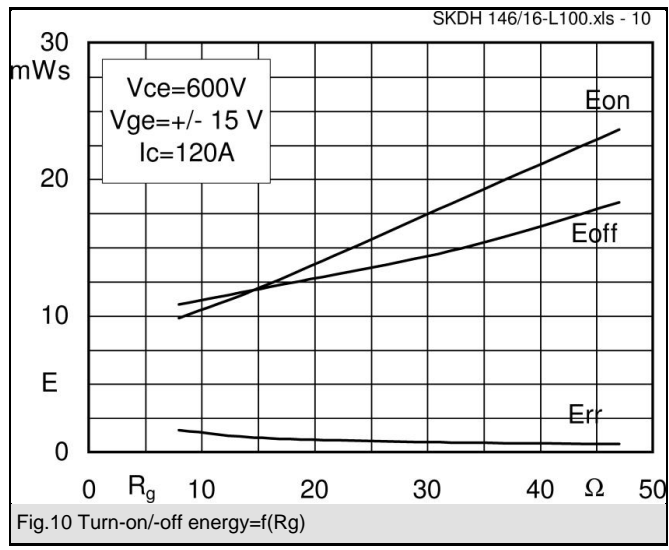
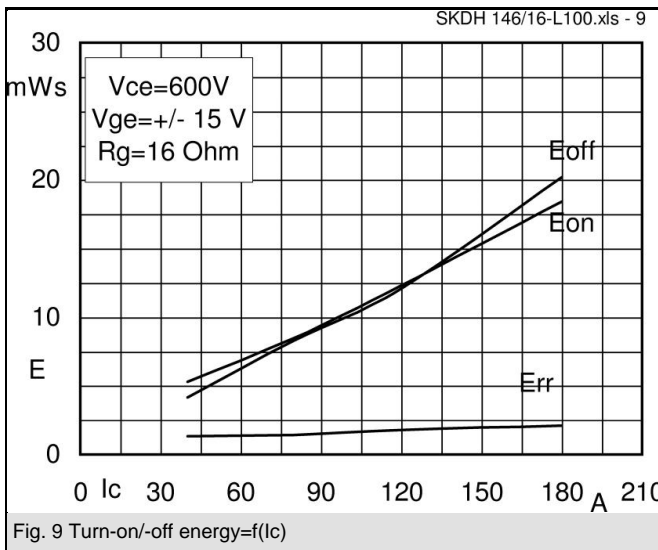
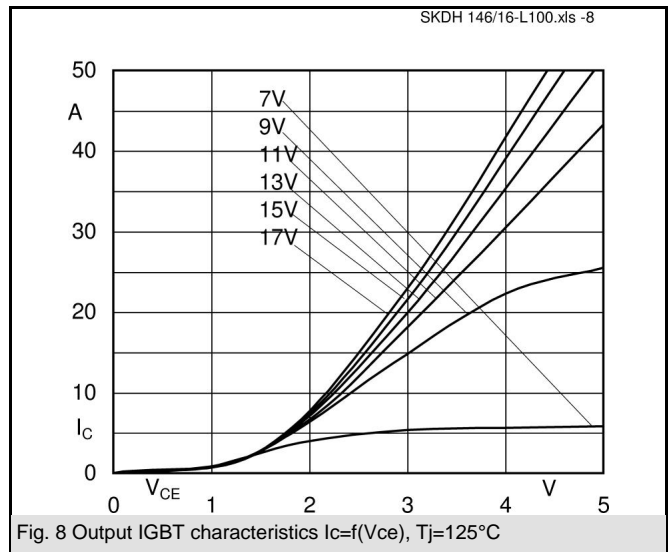
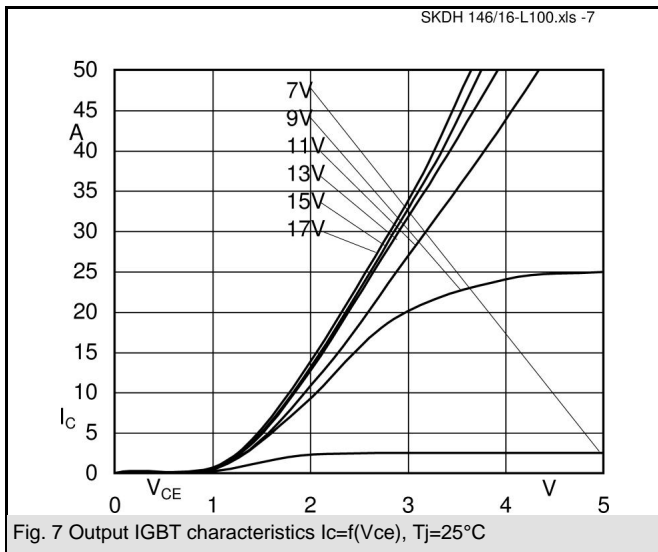


Fig. 5 Temperature sensor characteristic



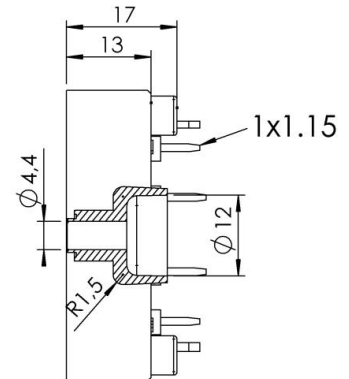
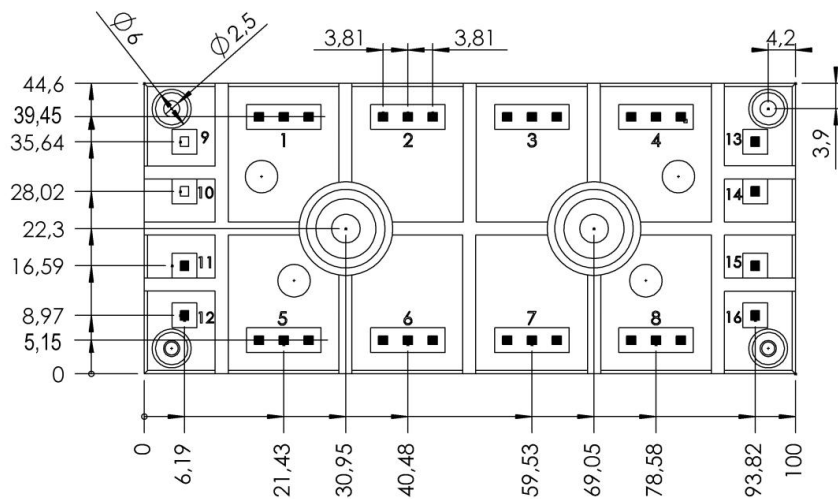
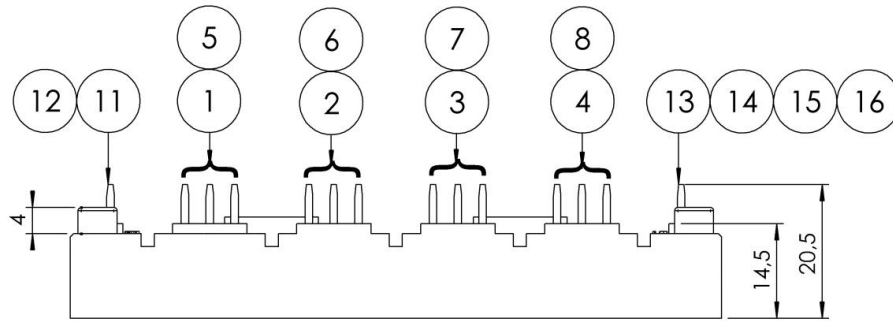
Fig. 6 Typ gate charge characteristic



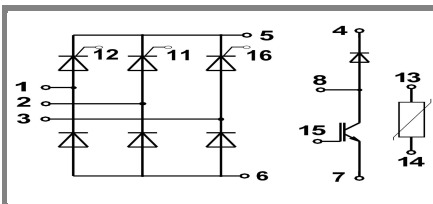
# SKDH 146/.. -L100

UL recognized  
File n&#176; 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.

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.