

3-Phase Bridge Rectifier + IGBT braking chopper

SKD 116/..L105

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
- IGBT Trench4 inside; max T_i=175°C
- CAL4F inside, max Tj=175°C
- $I_{CM}/I_{FM} = 3xI_{C,nom}/I_{F,nom}$ Rectifier diode, max Tj=150°C

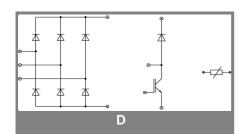
Typical Applications*

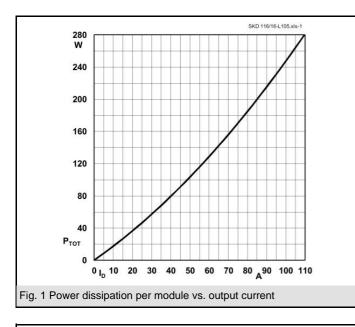
- DC drives
- Controlled filed rectifiers for DC motors
- Controlled battery charger

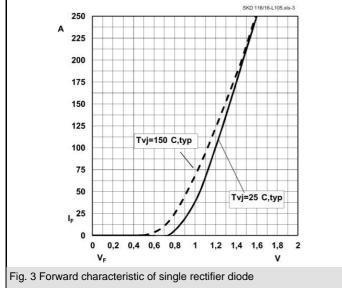
V _{RSM} V	V _{RRM} , V _{DRM} V	I _D = 110 A (maximum value for continuous operation) (T _s = 85 °C)
1300	1200	SKD 116/12-L105
1700	1600	SKD 116/16-L105

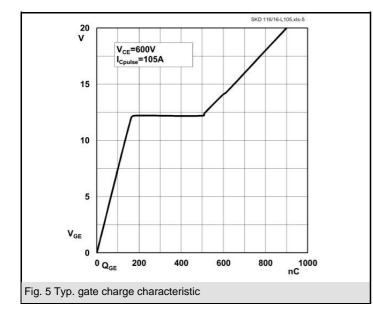
Absolute	Maximum Ratings	T _s = 25 °C, unless otherwise s	°C, unless otherwise specified				
Symbol	Conditions	Values	Units				
Bridge - Rectifier							
I _D	T _s = 85 °C; inductive load	110	Α				
I _{FSM} /I _{TSM}	t _p = 10 ms; sin 180° ;T _{jmax}	1050	Α				
i²t	t _p = 10 ms; sin 180° ;T _{jmax}	5500	A²s				
IGBT - Chopper							
V_{CES}/V_{GES}		1200 / 20	V				
I _C	T _s = 25 (70) °C	123 (100)	А				
I _{CM}	t _p = 1 ms; T _s = 25 (70) °C	315	А				
Freewheeling - CAL Diode							
V _{RRM}		1200	V				
I _F	T _s = 25 (70) °C	90 (75)	А				
I _{FM}	t _p = 1 ms; T _s = 25 (70) °C	300	А				
T _{vi}	Diode & IGBT (Thyristor)	- 40 + 175 (-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				

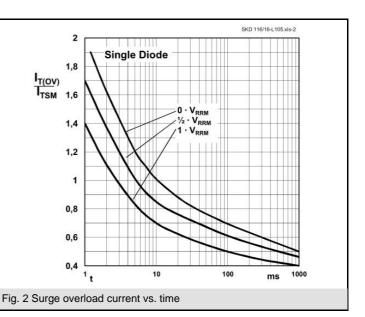
Characteristics		T_s = 25 °C, unless otherwise specified				
Symbol	Conditions	min.	typ.	max.	Units	
Diode - R	ectifier				•	
V _{TO} / r _t	T _j = 125 °C		0,8 / 7		V / mΩ	
R _{th(j-s)}	per diode			1	K/W	
IGBT - Chopper						
V _{CE(sat)}	I _C = 105 A, T _j = 25 °C; V _{GE} = 15 V		1,85	2,1	V	
$R_{th(j-s)}$	per IGBT		0,46		K/W	
t _{d(on)} / t _r	valid for all values:	9	97 / 185		ns	
$t_{d(off)} / t_{f}$	V _{CC} = 600 V; V _{GE} = 15 V; I _C = 105 A; T _j = 150 °C;	4	143 / 82		ns	
E _{on} +E _{off}	T _j = 150 °C; R _G = 3 Ω;	47,5 mJ			mJ	
	inductive load					
CAL - Dic	ode - Freewheeling					
V _{T(TO)} / r _t	T _i = 150 °C	0	,9 / 12,5	1,1 / 13,7	V / mΩ	
R _{th(j-s)}	per diode		0,75		K/W	
I _{RRM}	valid for all values:		22		Α	
Q _{rr}	I _F = 105 A; V _R = - 600 V; dI _F /dt = - 1700 A/μs		7		μC	
E _{off}	V _{GE} = 0 V; T _j = 150 °C		5,94		mJ	
Tempera	ture Sensor					
R _{TS}	T = 25 (100) °C;	10	00 (1670)		Ω	
Mechanic	cal data					
M _S	mounting Torque	2,55		3,45	Nm	

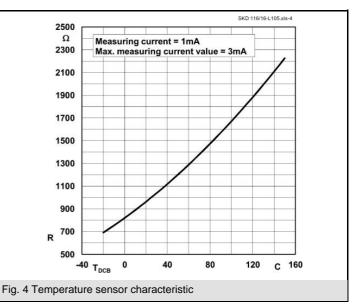


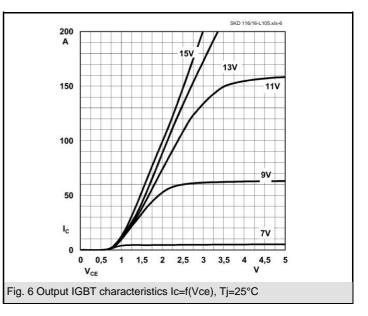


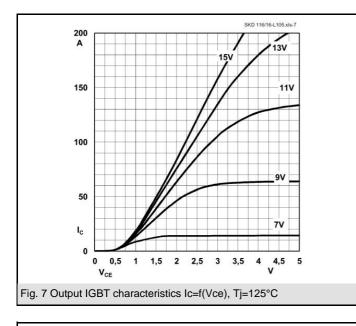


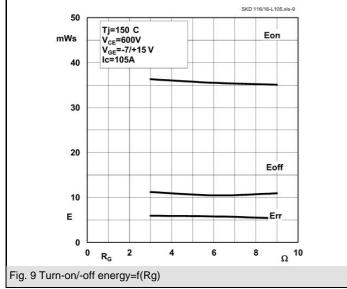


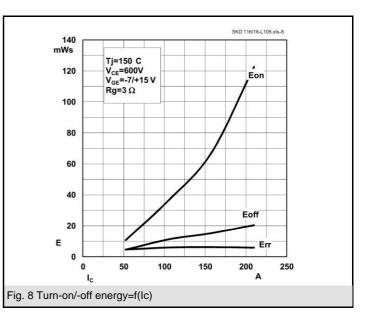


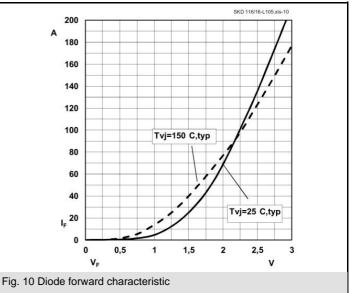


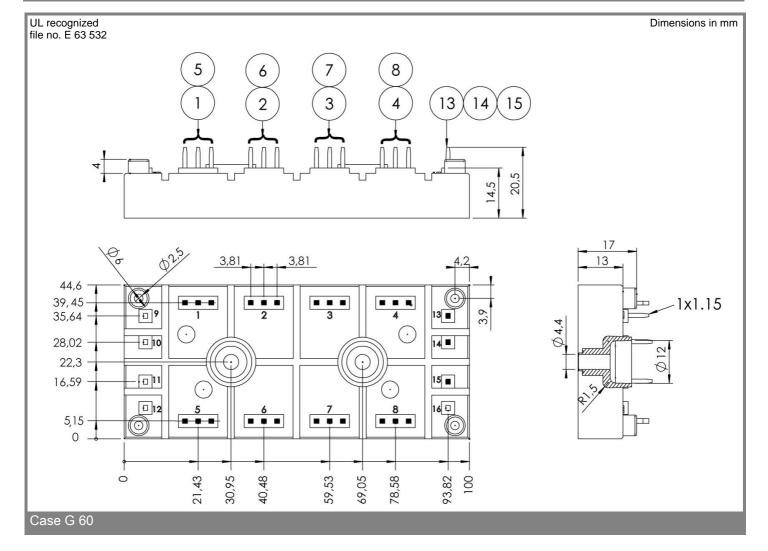


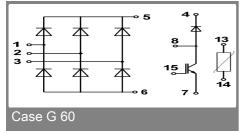












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* 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 staff.