



SKiM® 5

Trench IGBT modules

SKiM 600GD126DLM

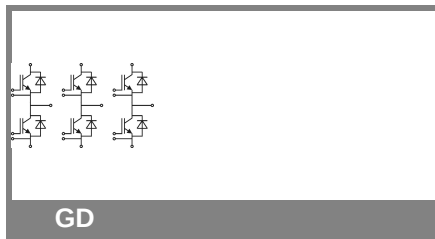
Target Data

Features

- Trench gate IGBT with field stop layer
- Low inductance case
- Fast & soft inverse CAL diodes
- Isolated by AlN DCB (Direct Copper Bonded) ceramic plate
- Pressure contact technology for thermal contacts
- Spring contact system to attach driver PCB to the control terminals
- Integrated temperature sensor

Typical Applications*

- Uninterruptable power supplies (UPS)
- Three phase inverters for AC motor speed control



GD

Absolute Maximum Ratings			T _c = 25 °C, unless otherwise specified	
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = °C		1200	V
I _C	T _j = 150 °C	T _{heatsink} = 25 °C	524	A
		T _{heatsink} = 70 °C	361	A
I _{CRM}	I _{CRM} = 2xI _{CNOM} ; V _{CC} =800V		900	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 800 V; V _{GE} ≤ 20 V; T _j = 150 °C V _{CES} < 1200 V		10	µs
Inverse Diode				
I _F	T _j = 150 °C	T _{heatsink} = 25 °C	388	A
		T _{heatsink} = 70 °C	289	A
I _{FRM}	I _{FRM} = 2 x I _{FNOM}		600	A
I _{FSM}	t _p = 10 ms; sin. T _j = 150 °C		3300	A
Module				
I _{t(RMS)}				A
T _{vj}			-40 ... +150	°C
T _{stg}			-40 ... +125	°C
V _{isol}	AC, 1 min.		2500	V

Characteristics			T _c = 25 °C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 18 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _j = 25 °C				0,6	mA
V _{CE0}	T _j = 25 °C			1	1,2	V
	T _j = 125 °C			0,9	1,1	V
r _{CE}	V _{GE} = 15 V T _j = 25°C			1,44	1,89	mΩ
	T _j = 125°C			2,33	2,78	mΩ
V _{CE(sat)}	I _{Cnom} = 450 A, V _{GE} = 15 V T _j = 25°C _{chiplev.}			1,65	2,05	V
	T _j = 125°C _{chiplev.}			1,95	2,35	V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz			35		nF
C _{oes}				2,5		nF
C _{res}				2,4		nF
Q _G	V _{GE} = -8V/+15V			3000		nC
R _{Gint}	T _j = 25 °C			1,7		Ω
t _{d(on)}	R _{Gon} = 2 Ω V _{CC} = 600V			315		ns
t _r				70		ns
E _{on}	di/dt = 6800 A/μs I _C = 450A			37		mJ
t _{d(off)}	R _{Goff} = 2 Ω T _j = 125 °C			680		ns
t _f	di/dt = 3200 A/μs V _{GE} = ± 15V			90		ns
E _{off}				60		mJ
R _{th(j-s)}	per IGBT			0,09		K/W



SKiM® 5

Trench IGBT modules

SKiM 600GD126DLM

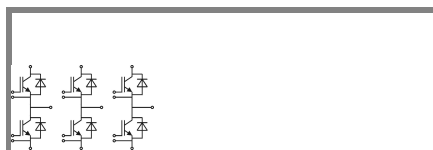
Target Data

Features

- Trench gate IGBT with field stop layer
- Low inductance case
- Fast & soft inverse CAL diodes
- Isolated by AlN DCB (Direct Copper Bonded) ceramic plate
- Pressure contact technology for thermal contacts
- Spring contact system to attach driver PCB to the control terminals
- Integrated temperature sensor

Typical Applications*

- Uninterruptable power supplies (UPS)
- Three phase inverters for AC motor speed control

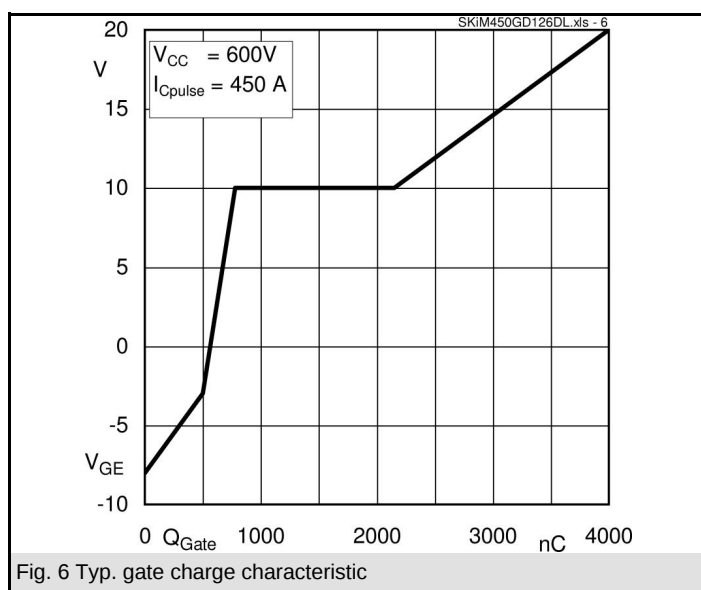
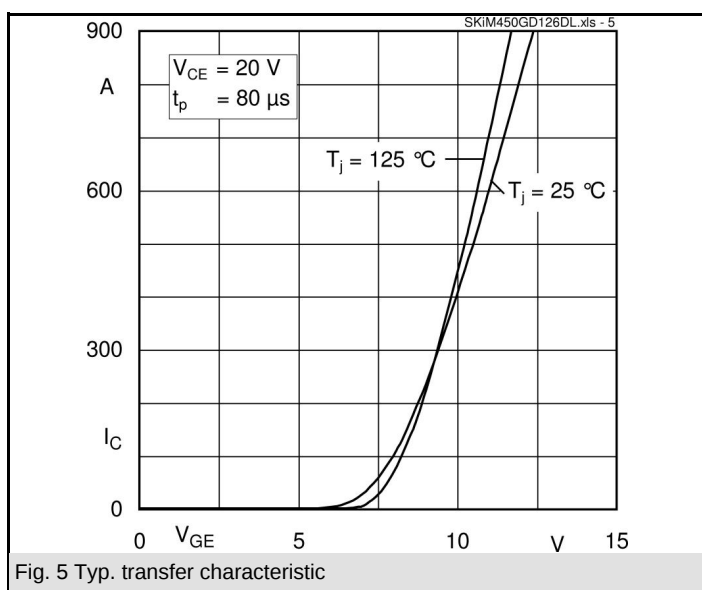
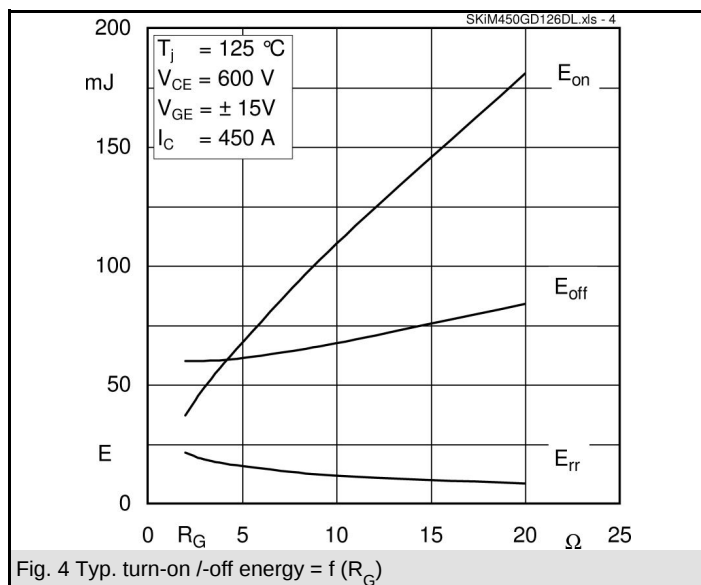
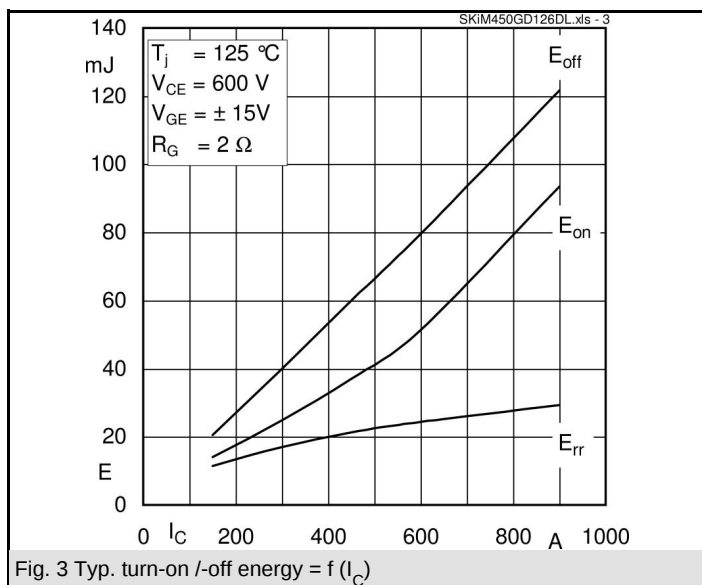
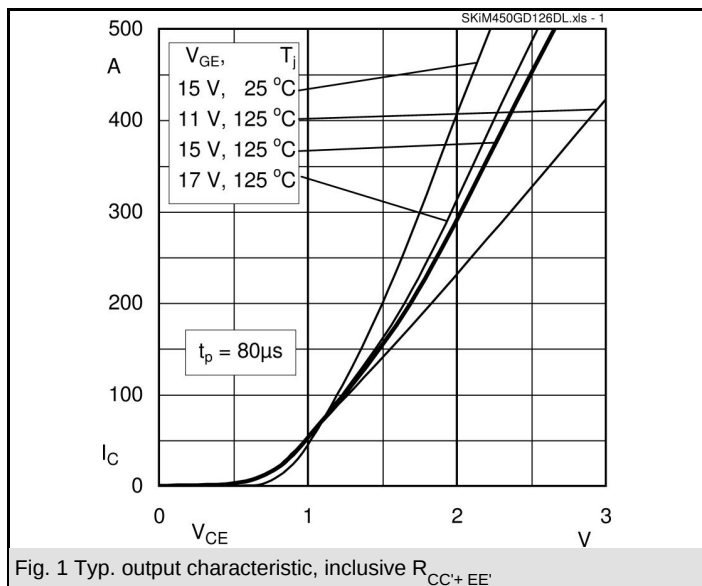


GD

Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 300 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		2	2,5	V
		T _j = 125 °C _{chiplev.}		1,8	2,3	V
V _{F0}		T _j = 25 °C		1,1	1,45	V
		T _j = 125 °C		0,85	1,2	V
r _F		T _j = 25 °C		3	3,5	mΩ
		T _j = 125 °C		3,17	3,67	mΩ
I _{RRM}	I _F = 450 A	T _j = 125 °C		380		A
Q _{rr}	di/dt = 7000 A/μs			52		μC
E _{tr}	V _{GE} = -15V; R _{Gon} =R _{Goff} =2Ω			21,3		mJ
R _{th(j-s)}	per diode			0,125		K/W
Module						
L _{CE}					20	nH
R _{CC'+EE'}	res., terminal-chip	T _{case} = 25 °C		0,9		mΩ
		T _{case} = 125 °C		1,1		mΩ
M _s	to heat sink M5		2		3	Nm
M _t	to terminals M6		4		5	Nm
w					460	g
Temperature sensor						
R _{TS}	T = 25 (100)°C			1 (1,67)		kΩ
Tolerance	T = 25 (100)°C			3 (2)		%

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.



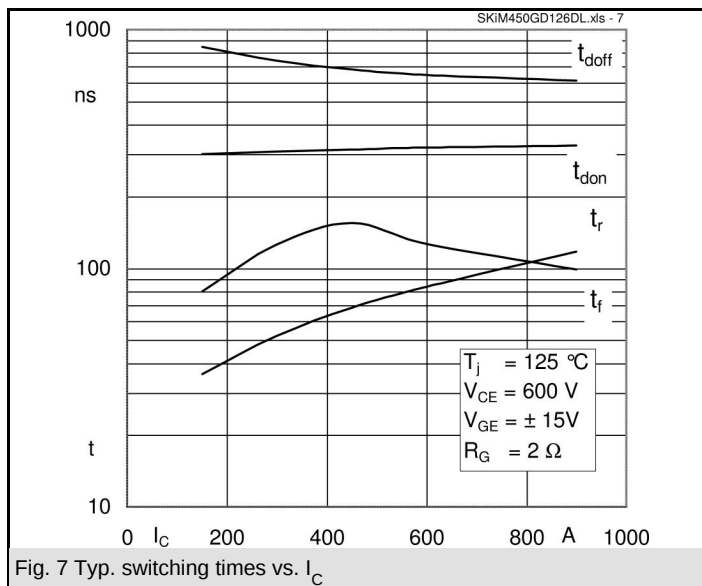


Fig. 7 Typ. switching times vs. I_C

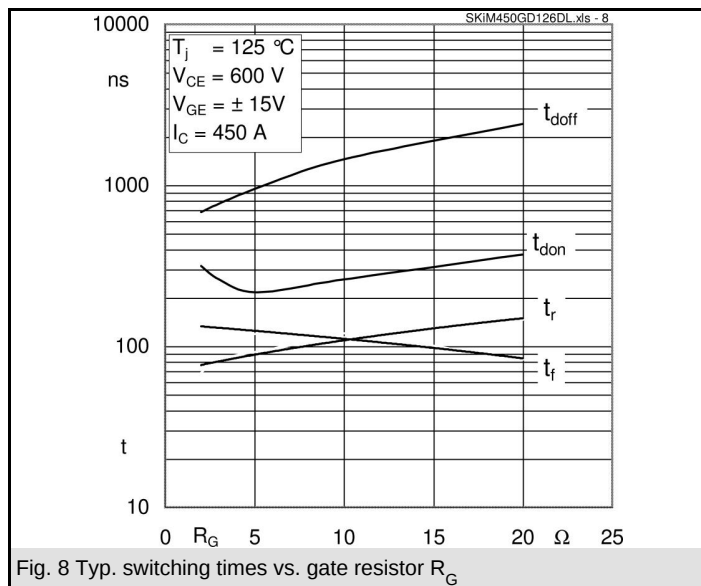


Fig. 8 Typ. switching times vs. gate resistor R_G

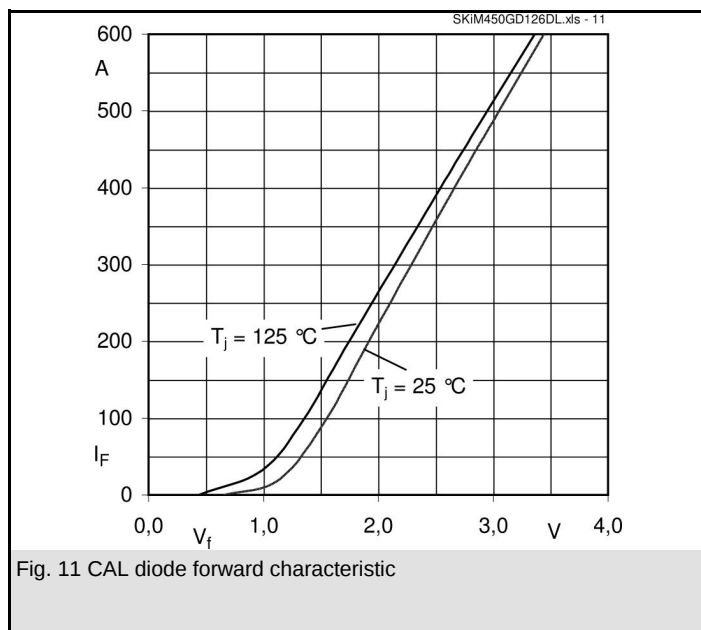


Fig. 11 CAL diode forward characteristic

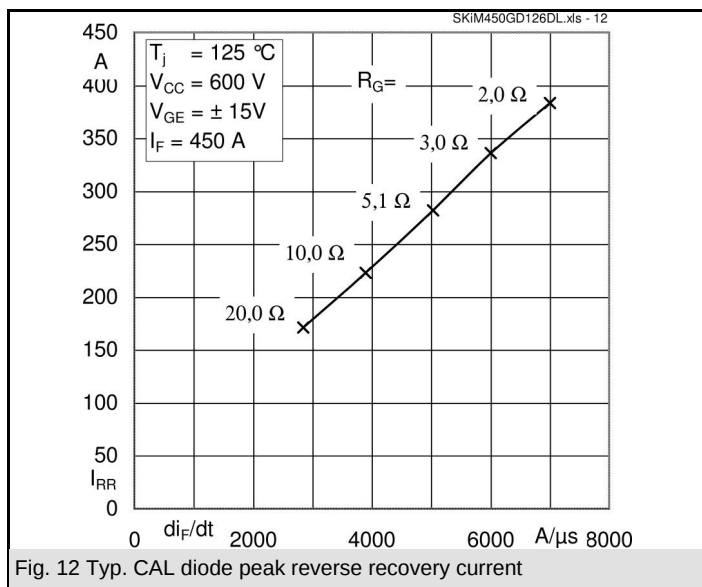


Fig. 12 Typ. CAL diode peak reverse recovery current

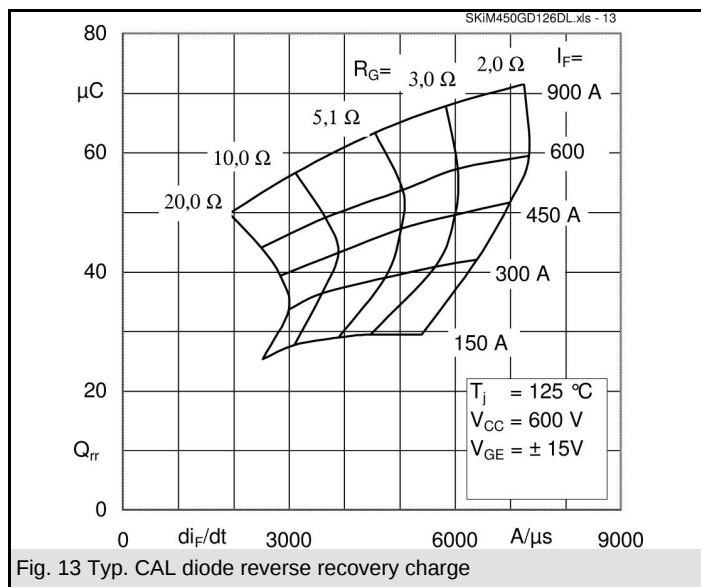


Fig. 13 Typ. CAL diode reverse recovery charge

