

SKM 800GA126D



SEMITRANS® 4

Trench IGBT Modules

SKM 800GA126D

Features

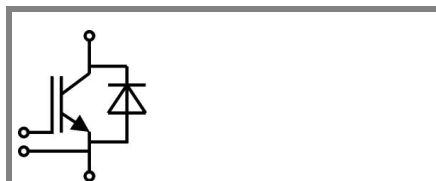
- Trench = Trenchgate technology
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications*

- AC inverter drives
- UPS
- Electronic welders

Remarks

- $I_{DC} \leq 500A$ limited by terminals



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Absolute Maximum Ratings			$T_c = 25\text{ }^{\circ}\text{C}$, unless otherwise specified	
Symbol	Conditions		Values	Units
IGBT				
V_{CES}	$T_j = 25\text{ }^{\circ}\text{C}$		1200	V
I_C	$T_j = 150\text{ }^{\circ}\text{C}$	$T_{case} = 25\text{ }^{\circ}\text{C}$	960	A
		$T_{case} = 80\text{ }^{\circ}\text{C}$	620	A
I_{CRM}	$I_{CRM}=2 \times I_{Cnom}$		1200	A
V_{GES}			± 20	V
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ }^{\circ}\text{C}$ $V_{CES} < 1200\text{ V}$		10	μs
Inverse Diode				
I_F	$T_j = 150\text{ }^{\circ}\text{C}$	$T_{case} = 25\text{ }^{\circ}\text{C}$	680	A
		$T_{case} = 125\text{ }^{\circ}\text{C}$	470	A
I_{FRM}	$I_{FRM}=2 \times I_{Fnom}$		1200	A
I_{FSM}	$t_p = 10\text{ ms}; \sin.$	$T_j = 150\text{ }^{\circ}\text{C}$	3600	A
Module				
$I_t(\text{RMS})$			500	A
T_{vj}			- 40 ... + 150	$^{\circ}\text{C}$
T_{stg}			- 40 ... + 125	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.		4000	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 = 16 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _J = 25 °C T _J = 125 °C		0,2	0,6	mA mA
V _{CE0}		T _J = 25 °C T _J = 125 °C		1 0,9	1,15	V V
r _{CE}	V _{GE} = 15 V	T _J = 25°C T _J = 125°C		1,2 1,8	1,7	mΩ mΩ
V _{CE(sat)}	I _{Cnom} = 600 A, V _{GE} = 15 V	T _J = 25°C _{chiplev.} T _J = 125°C _{chiplev.}		1,7 2	2,15	V V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz		42		nF
C _{oes}				3,3		nF
C _{res}				3,1		nF
Q _G	V _{GE} = -8V - +20V			5200		nC
R _{Gint}	T _J = °C			1,25		Ω
t _{d(on)}	R _{Gon} = 3 Ω	V _{CC} = 600V I _C = 600A		220		ns
t _r				100		ns
E _{on}				65		mJ
t _{d(off)}	R _{Goff} = 3 Ω	T _J = 125 °C V _{GE} = ± 15V		860		ns
t _f				135		ns
E _{off}				95		mJ
R _{th(j-c)}	per IGBT				0,042	K/W

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Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 600 A; V _{GE} = 0 V	T _J = 25 °C _{chiplev.}	1,6	1,8		V
		T _J = 125 °C _{chiplev.}	1,6	1,8		V
V _{F0}		T _J = 25 °C	1	1,1		V
		T _J = 125 °C	0,8	0,9		V
r _F		T _J = 25 °C	1	1,2		mΩ
		T _J = 125 °C	1,3	1,5		mΩ
I _{RRM}	I _F = 600 A	T _J = 125 °C	540			A
Q _{rr}	di/dt = 6000 A/μs		125			μC
E _{rr}	V _{GE} = -15 V; V _{CC} = 600 V		59			mJ
R _{th(j-c)D}	per diode				0,09	K/W
Module						
L _{CE}			15	20		nH
R _{CC'+EE'}	res., terminal-chip	T _{case} = 25 °C	0,18			mΩ
		T _{case} = 125 °C	0,22			mΩ
R _{th(c-s)}	per module				0,038	K/W
M _s	to heat sink M6		3	5		Nm
M _t	to terminals M6 (M4)		2,5 (1,1)	5 (2)		Nm
w					330	g

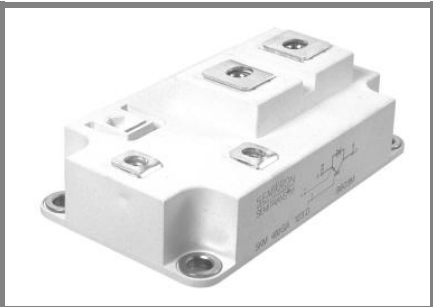
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* 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.



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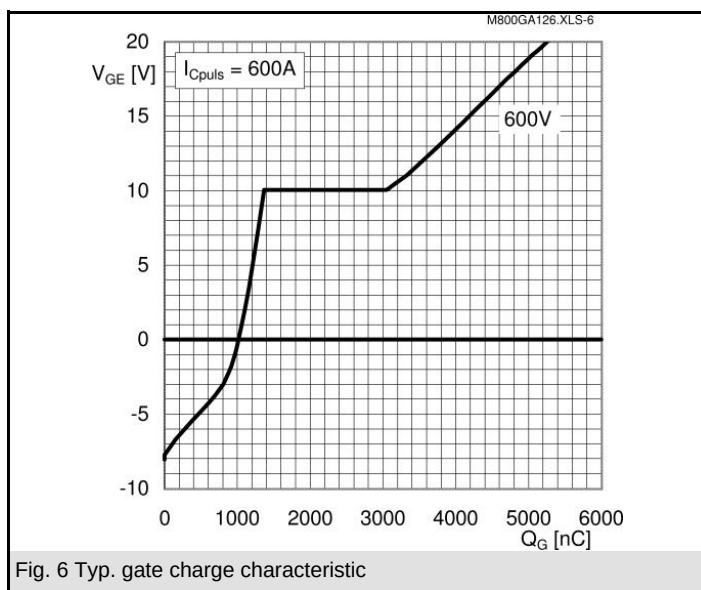
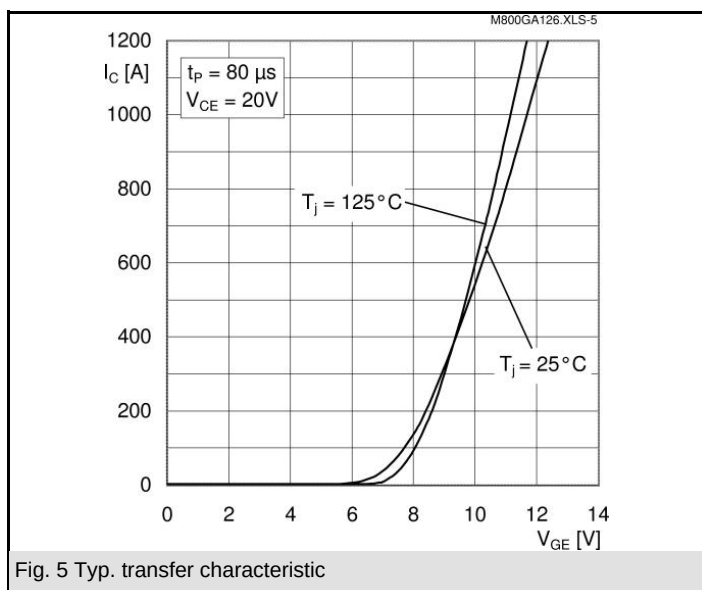
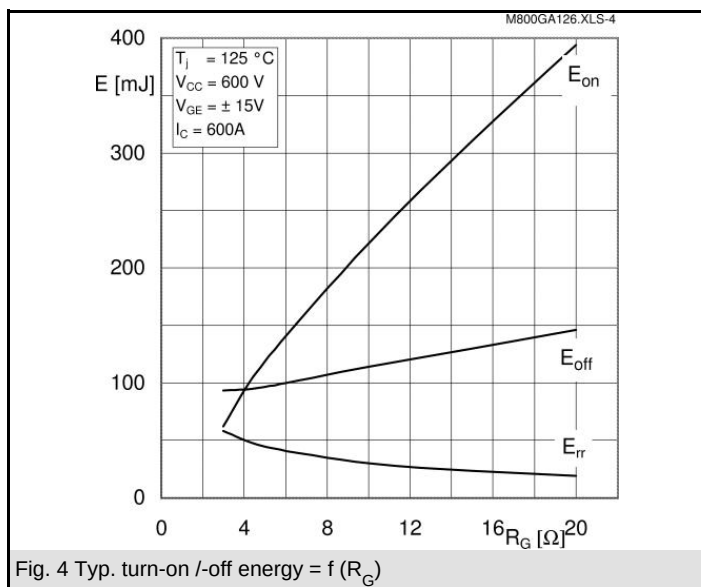
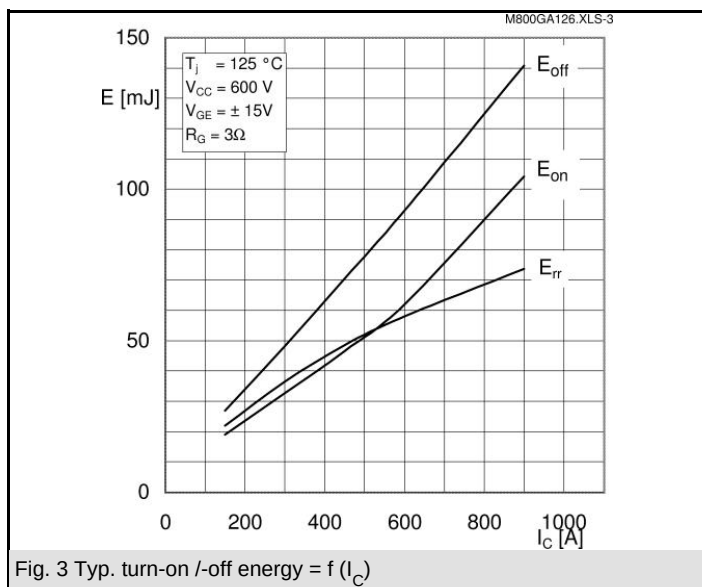
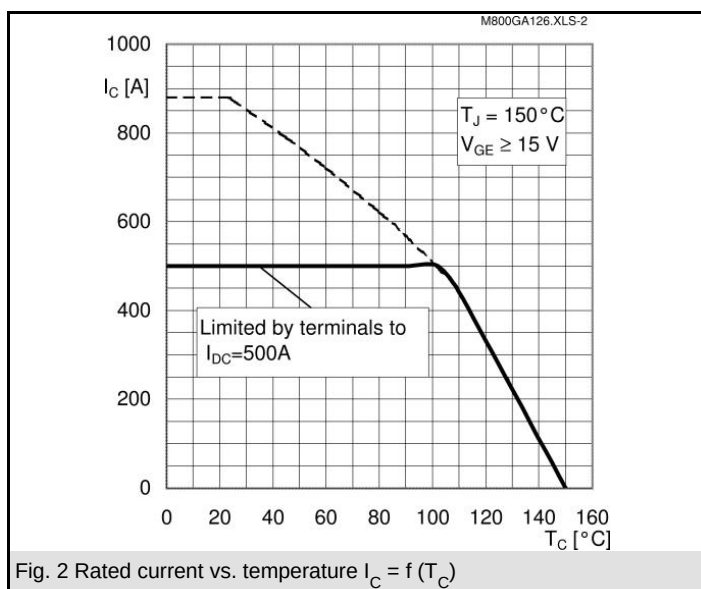
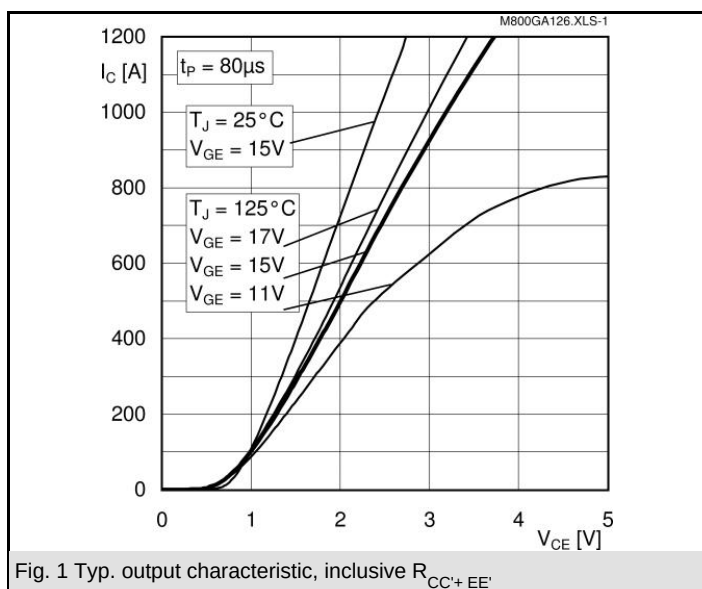
Remarks

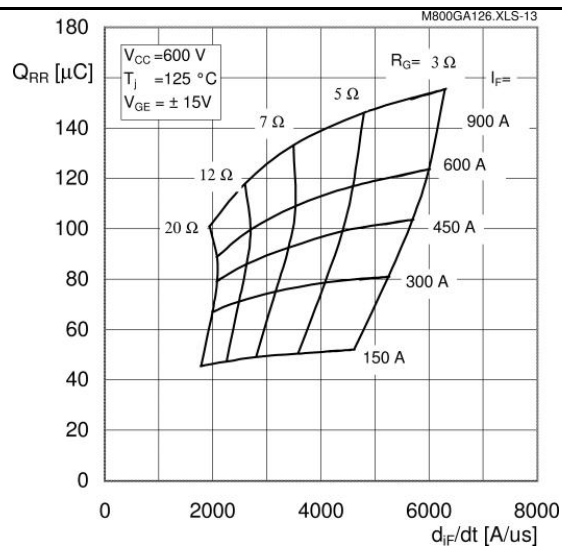
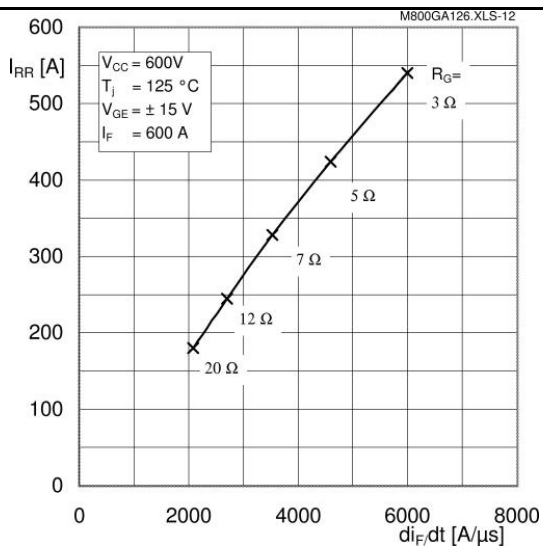
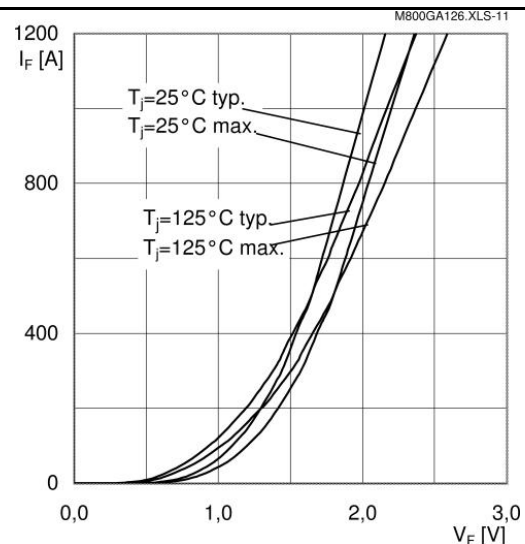
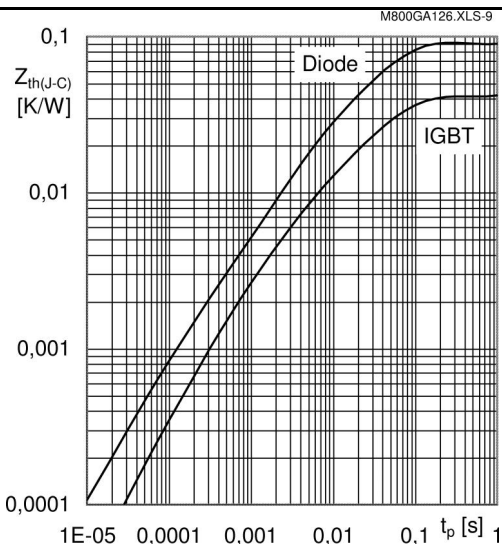
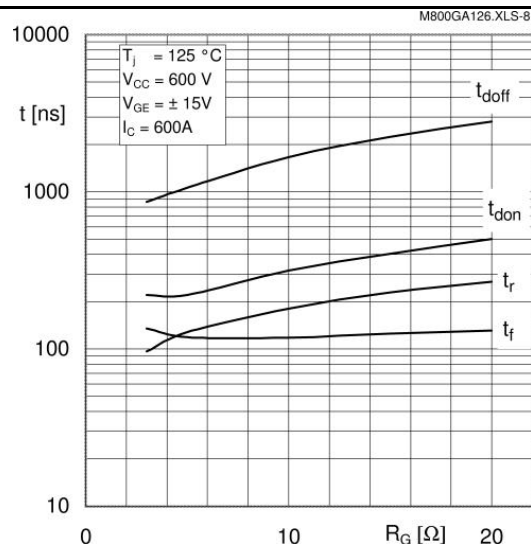
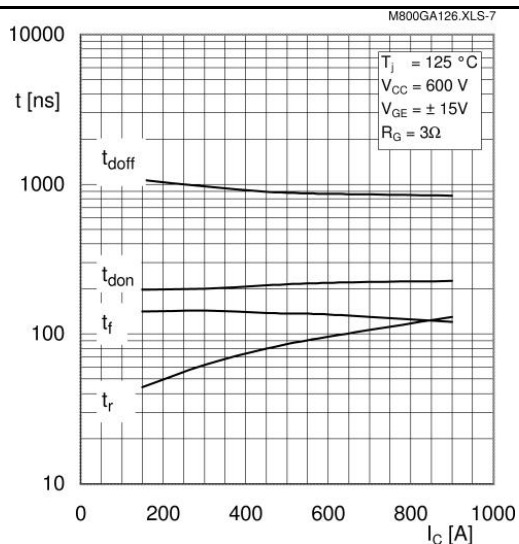
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Z_{th}	Symbol	Conditions	Values	Units
$Z_{th(j-c)I}$				
R_i		$i = 1$	30	mk/W
R_i		$i = 2$	9,5	mk/W
R_i		$i = 3$	2,2	mk/W
R_i		$i = 4$	0,3	mk/W
τ_{u_i}		$i = 1$	0,1043	s
τ_{u_i}		$i = 2$	0,009	s
τ_{u_i}		$i = 3$	0,0015	s
τ_{u_i}		$i = 4$	0,004	s
$Z_{th(j-c)D}$				
R_i		$i = 1$	62	mk/W
R_i		$i = 2$	23	mk/W
R_i		$i = 3$	4,2	mk/W
R_i		$i = 4$	0,8	mk/W
τ_{u_i}		$i = 1$	0,0566	s
τ_{u_i}		$i = 2$	0,0166	s
τ_{u_i}		$i = 3$	0,0015	s
τ_{u_i}		$i = 4$	0,0002	s



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