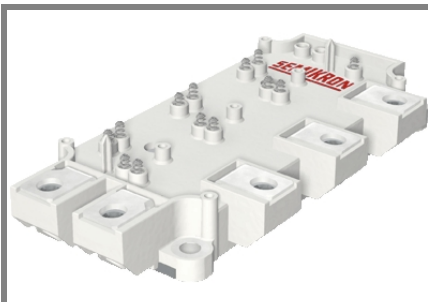




SEMiX® 13s

Trench IGBT Modules

SEMiX 101GD126HDs

Preliminary Data

Features

- Homogeneous Si
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability

Typical Applications

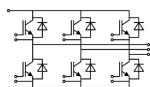
- AC inverter drives
- UPS
- Electronic Welding

Remarks

- Case temperature limited to $T_C = 125^\circ\text{C}$ max.

Absolute Maximum Ratings		T _{case} = 25°C, unless otherwise specified		
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 150 °C	T _c = 25 °C	130	A
		T _c = 80 °C	90	A
I _{CRM}	I _{CRM} =2xI _{Cnom}		150	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 600 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 1200 V		10	μs
Inverse Diode				
I _F	T _j = 150 °C	T _c = 25 °C	115	A
		T _c = 80 °C	80	A
I _{FRM}	I _{FRM} =2xI _{Fnom}		150	A
I _{FSM}	t _p = 10 ms; sin.	T _j = 25 °C	600	A
Module				
I _{t(RMS)}			600	A
T _{vj}			- 40 ... + 150	°C
T _{stg}			- 40 ... + 125	°C
V _{isol}	AC, 1 min.		4000	V

Characteristics			T _{case} = 25°C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 3 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _J = 25 °C				0,3	mA
V _{CE0}				T _J = 25 °C	1	V
				T _J = 125 °C	0,9	V
r _{CE}	V _{GE} = 15 V	T _J = 25°C		9,3	12,7	mΩ
		T _J = 125°C		14,7	18	mΩ
V _{CE(sat)}	I _{Cnom} = 75 A, V _{GE} = 15 V	T _J = 25°C _{chiplev.}		1,7	2,15	V
		T _J = 125°C _{chiplev.}		2	2,45	V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz		5,35		nF
C _{oes}				0,28		nF
C _{res}				0,24		nF
Q _G	V _{GE} = -8 ... +15V			600		nC
t _{d(on)}	R _{Gon} = 2 Ω	V _{CC} = 600V I _{Cnom} = 75A T _J = 125 °C		225		ns
t _r				40		ns
E _{on}			10		mJ	
t _{d(off)}	R _{Goff} = 2 Ω			470		ns
t _f				85		ns
E _{off}			11		mJ	
R _{th(j-c)}	per IGBT				0,27	K/W



GD



Trench IGBT Modules

SEMIX 101GD126HDs

Preliminary Data

Features

- Homogeneous Si
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability

Typical Applications

- AC inverter drives
- UPS
- Electronic Welding

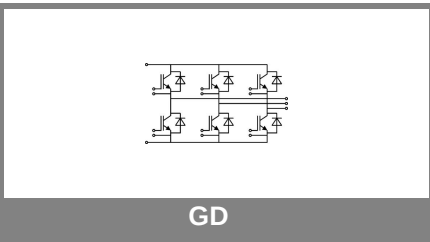
Remarks

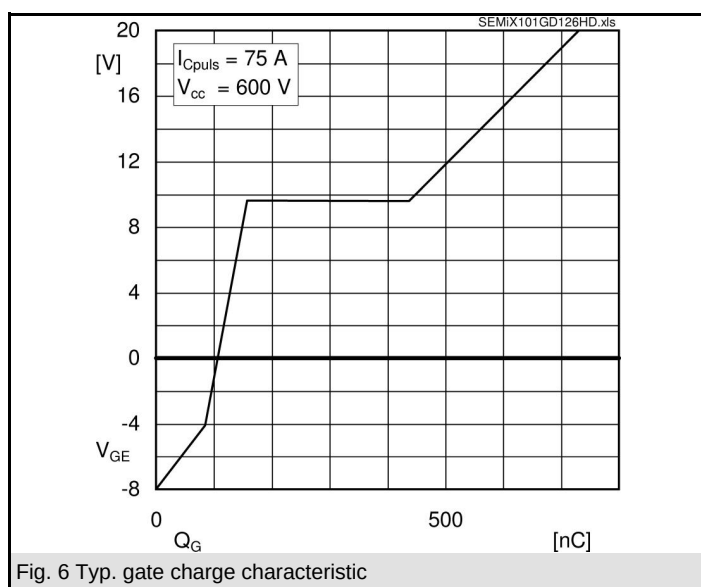
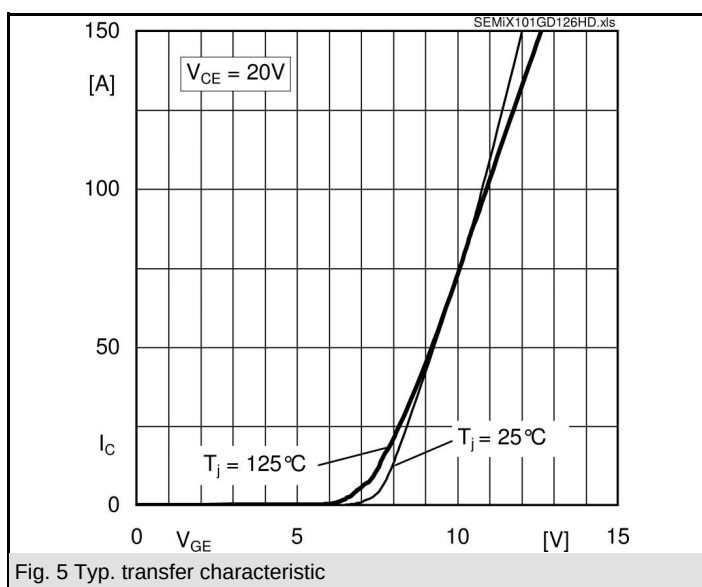
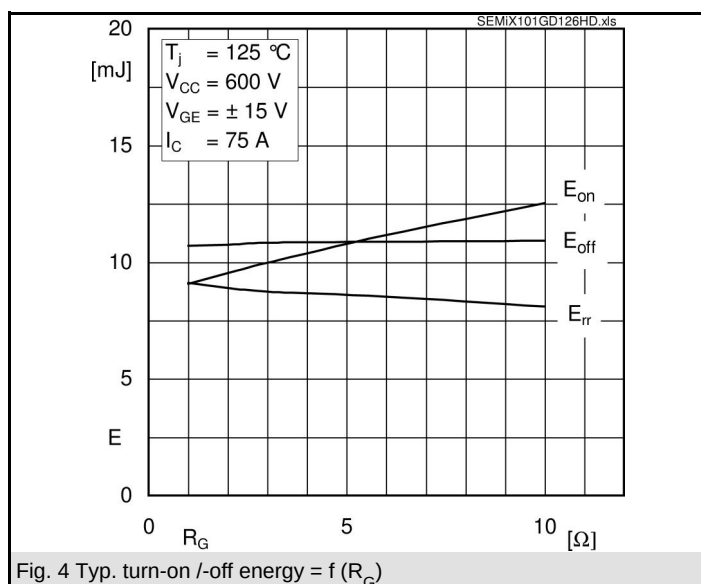
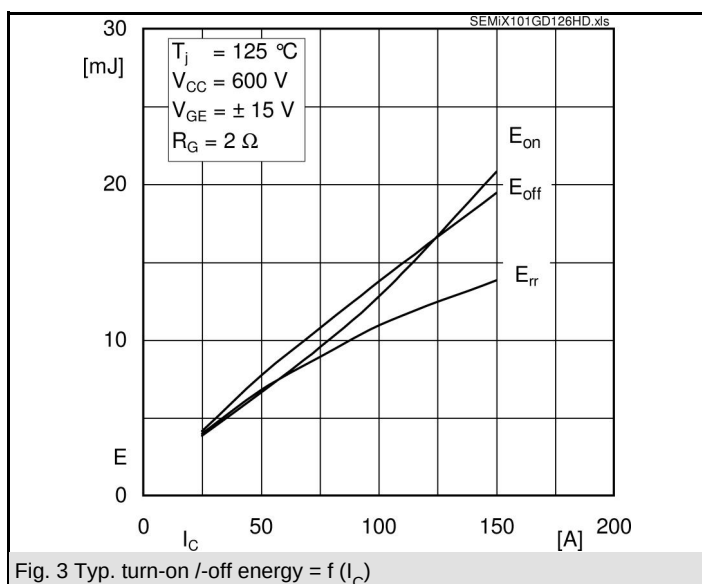
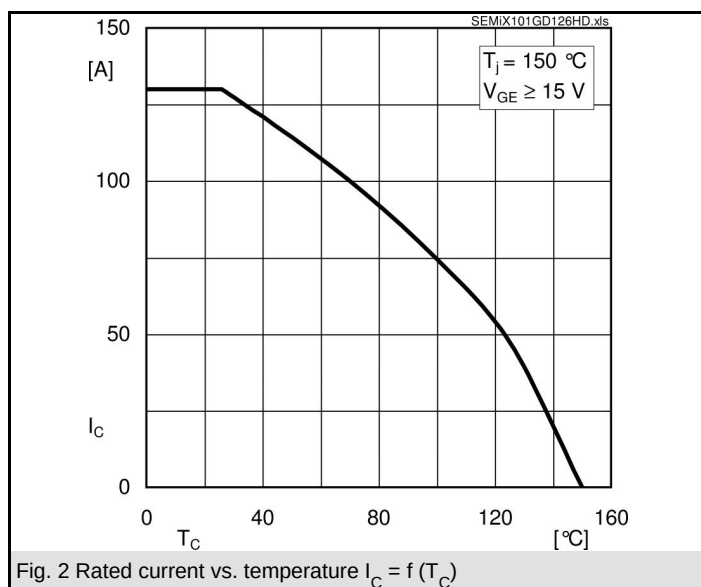
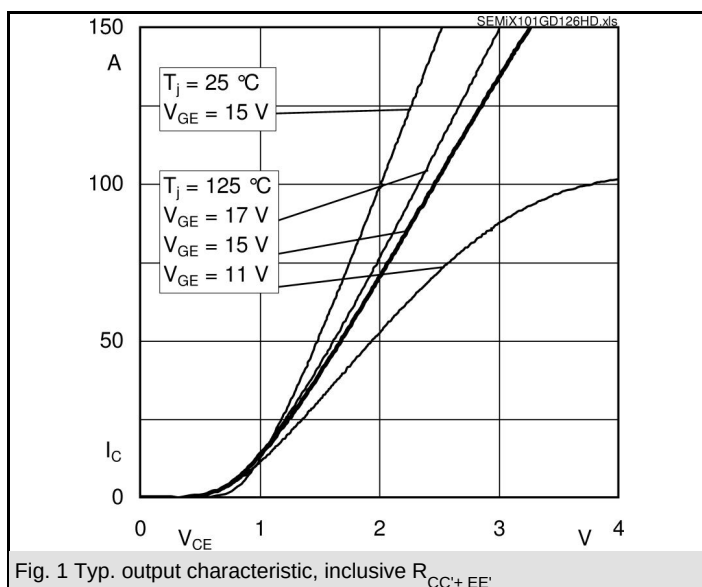
- Case temperatur limited to $T_C=125^{\circ}C$ max.

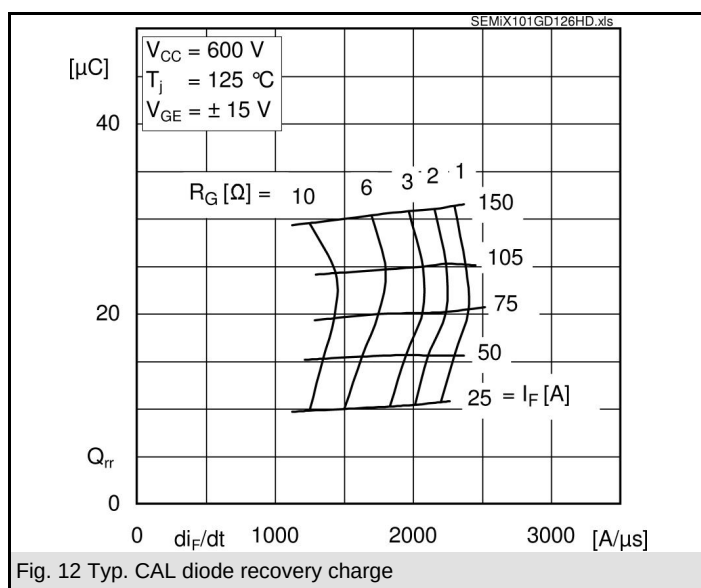
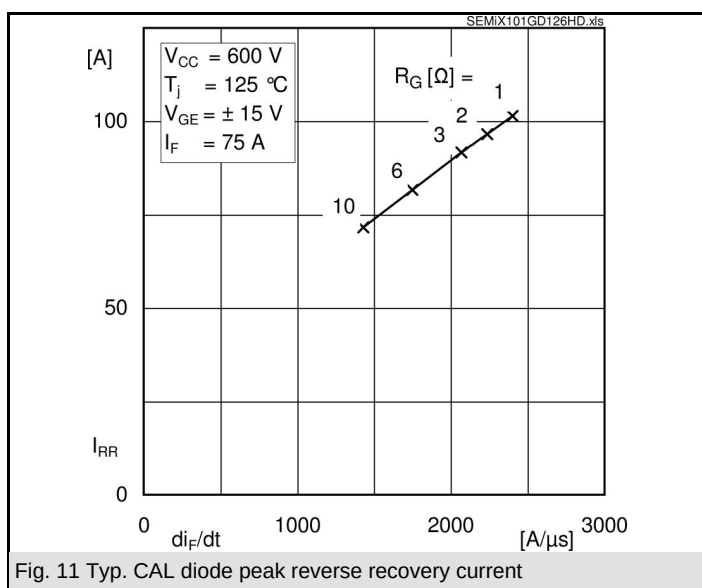
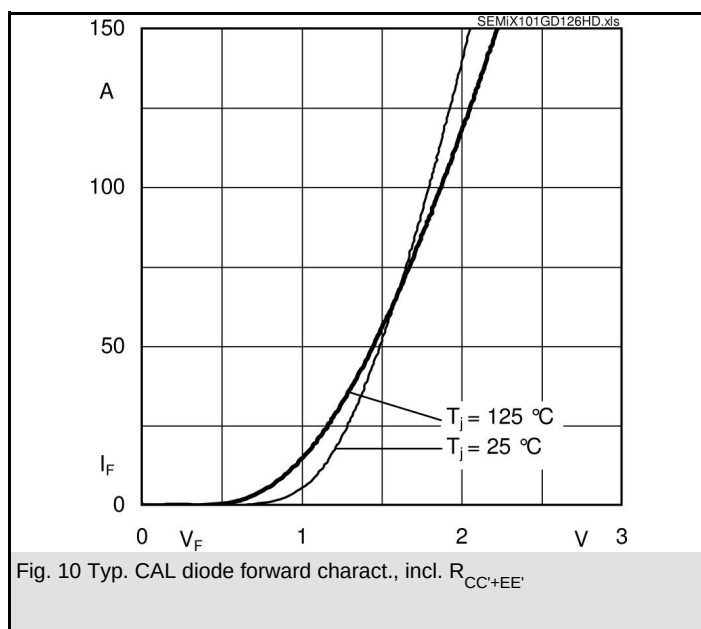
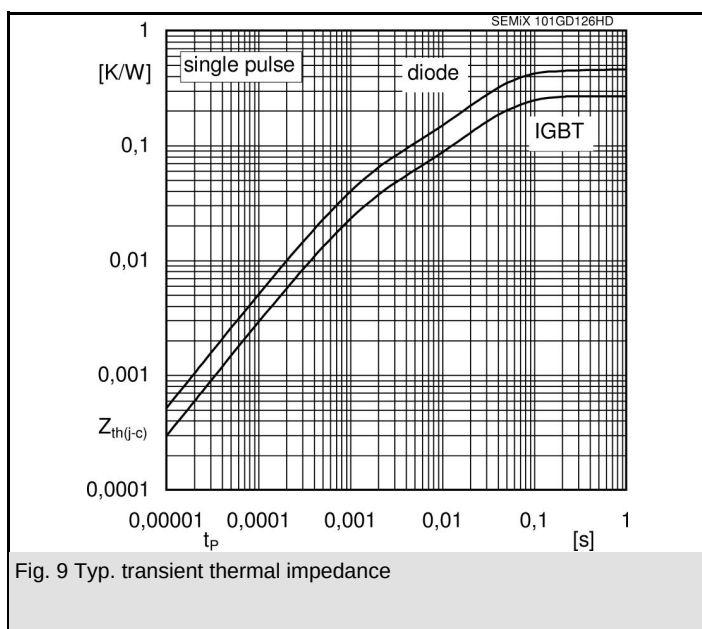
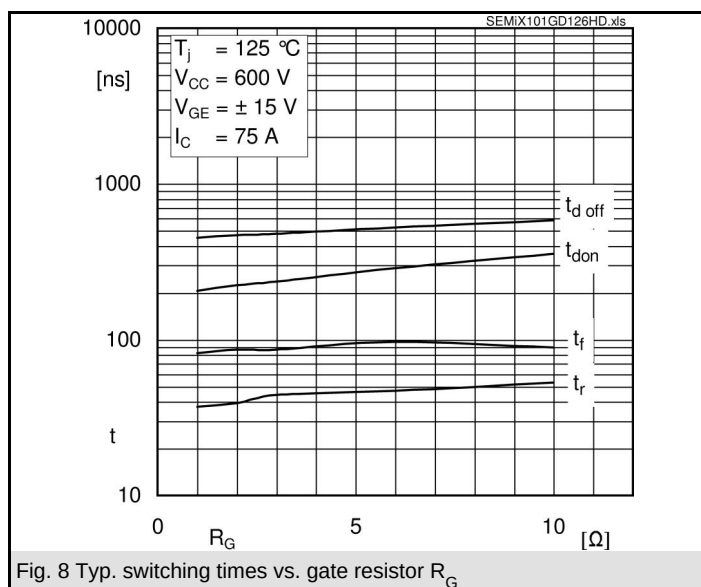
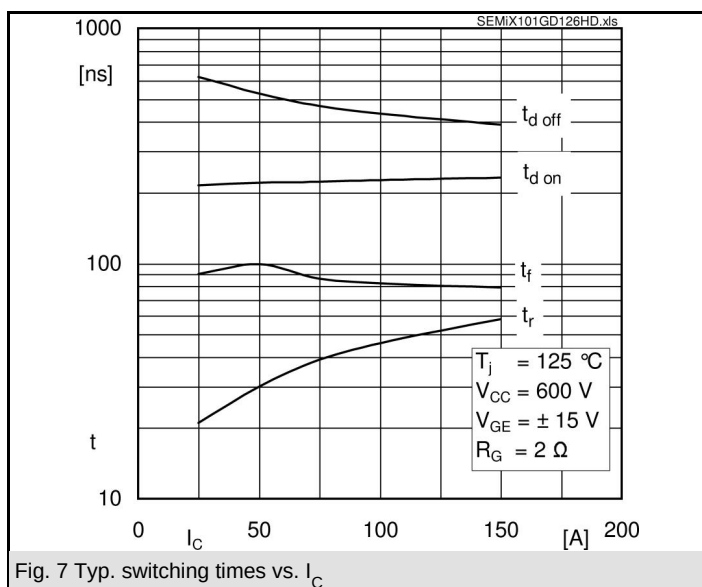
Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 75 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		1,6	1,8	V
		T _j = 125 °C _{chiplev.}		1,6	1,8	V
V _{F0}		T _j = 25 °C		1	1,1	V
		T _j = 125 °C		0,8	0,9	V
r _F		T _j = 25 °C		8	9,3	mΩ
		T _j = 125 °C		10,7	12	mΩ
I _{RRM}	I _{Fnom} = 75 A	T _j = 125 °C		97		A
Q _{rr}	di/dt = 2240 A/μs			20		μC
E _{rr}	V _{GE} = -15 V; V _{CC} = 600 V			9		mJ
R _{th(j-c)D}	per diode				0,46	K/W
Module						
L _{CE}				20		nH
R _{CC'+EE'}	res., terminal-chip	T _{case} = 25 °C		0,7		mΩ
		T _{case} = 125 °C		1		mΩ
R _{th(c-s)}	per module			0,04		K/W
M _s	to heat sink (M5)		3		5	Nm
M _t	to terminals (M6)		2,5		5	Nm
w					350	g
Temperature sensor						
R ₁₀₀	T _c =100°C (R ₂₅ =5 kΩ)			0,493±5%		kΩ
B _{100/125}	R(T)=R ₁₀₀ exp[B _{100/125} (1/T-1/T ₁₀₀)]; T[K]			3550±2%		K

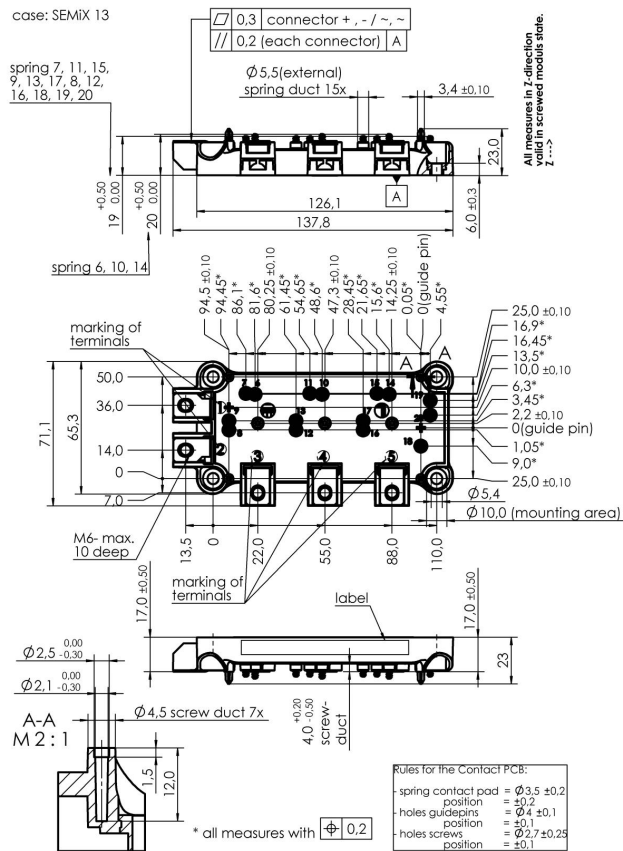
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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









Case SEMiX 13s

