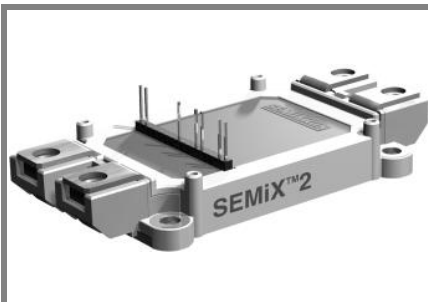


SEMiX 352GB128D



SEMiX® 2

SPT IGBT Modules

SEMiX 352GB128D

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Preliminary Data

Features

- Homogeneous Si
- SPT = Soft-Punch-Through technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability

Typical Applications

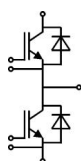
- AC inverter drives
- UPS
- Electronic welders up to 20 kHz

Remarks

- Not for new design

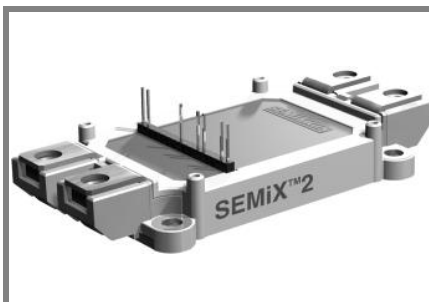
Absolute Maximum Ratings		T _{case} = 25°C, unless otherwise specified		
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 150 °C	T _{case} = 25 °C	375	A
		T _{case} = 80 °C	270	A
I _{CRM}	I _{CRM} =2xI _{Cnom}		400	A
V _{GES}			±20	V
t _{psc}	V _{CC} = 600 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 1200 V		10	µs
Inverse Diode				
I _F	T _j = 150 °C	T _{case} = 25 °C	295	A
		T _{case} = 80 °C	205	A
I _{FRM}	I _{FRM} =2xI _{Fnom}		400	A
I _{FSM}	t _p = 10 ms; sin. T _j = 25 °C		2000	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		$T_{case} = 25^{\circ}C$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 8 mA$	4,5	5	6,5	V
I_{CES}	$V_{GE} = 0 V$, $V_{CE} = V_{CES}$ $T_j = 25^{\circ}C$			0,3	mA
V_{CE0}			$T_j = 25^{\circ}C$	1	V
			$T_j = 125^{\circ}C$	0,9	V
r_{CE}	$V_{GE} = 15 V$		$T_j = 25^{\circ}C$	4,5	$m\Omega$
			$T_j = 125^{\circ}C$	6	$m\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 200 A$, $V_{GE} = 15 V$		$T_j = 25^{\circ}C_{chiple v.}$	1,9	V
			$T_j = 125^{\circ}C_{chiple v.}$	2,1	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0 V$ $f = 1 MHz$			18,9	nF
C_{oes}				1,24	nF
C_{res}				0,78	nF
Q_G	$V_{GE} = -8 V \dots +15 V$			1900	nC
$t_{d(on)}$	$R_{Gon} = 3 \Omega$			230	ns
t_r				55	ns
E_{on}	$R_{Goff} = 3 \Omega$			20	mJ
$t_{d(off)}$				585	ns
t_f				90	ns
E_{off}				21	mJ
$R_{th(j-c)}$	per IGBT			0,083	K/W



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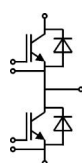
Remarks

- Not for new design

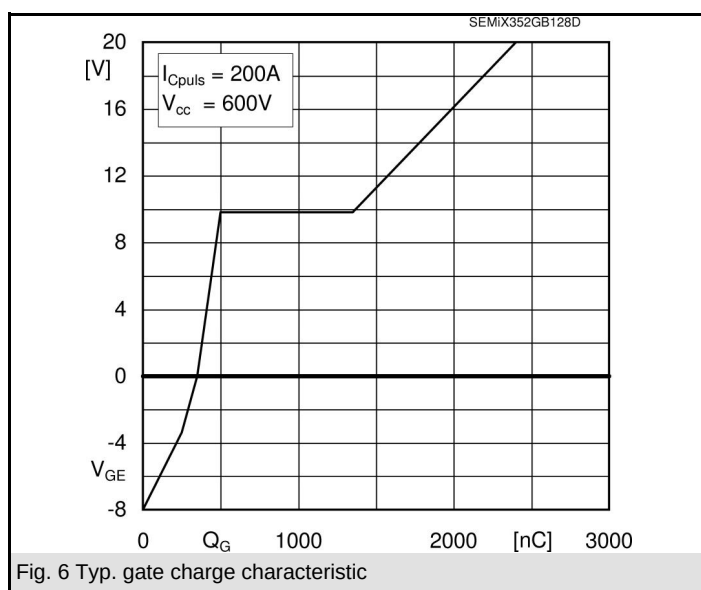
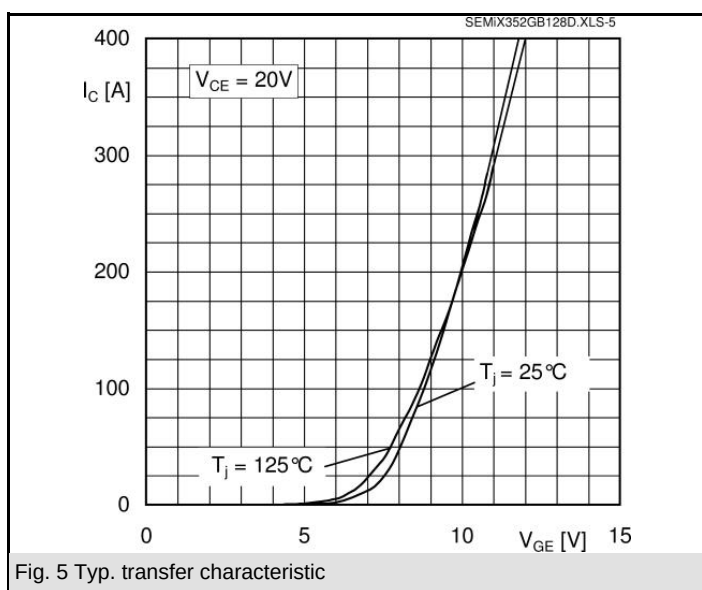
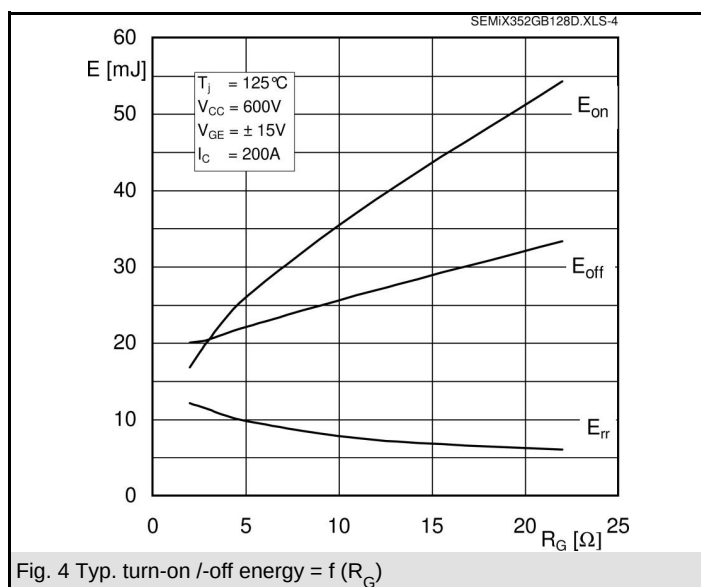
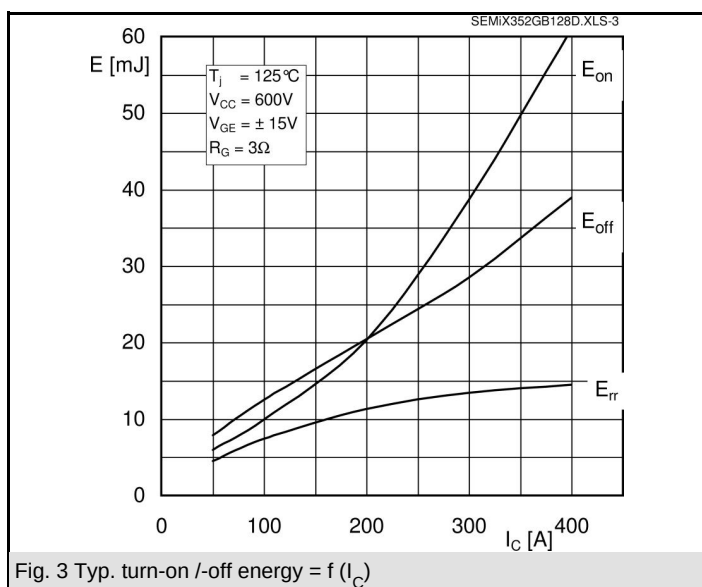
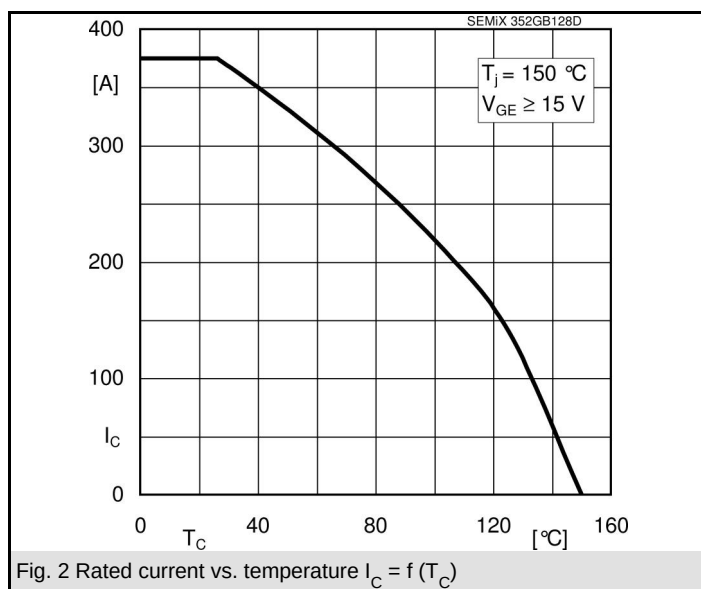
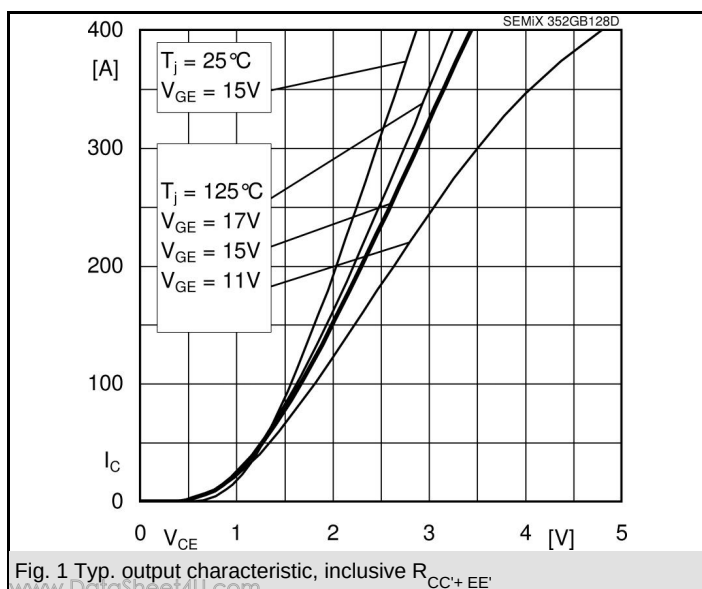
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 200 \text{ A}; V_{GE} = 0 \text{ V}$				
	$T_j = 25 \text{ }^{\circ}\text{C}_{chiplev.}$		2	2,5	V
	$T_j = 125 \text{ }^{\circ}\text{C}_{chiplev.}$		1,8	2,3	V
V_{F0}	$T_j = 25 \text{ }^{\circ}\text{C}$		1,1	1,45	V
	$T_j = 125 \text{ }^{\circ}\text{C}$		0,85	1,2	V
r_F	$T_j = 25 \text{ }^{\circ}\text{C}$		4,5	5,3	mΩ
	$T_j = 125 \text{ }^{\circ}\text{C}$		4,8	5,5	mΩ
I_{RRM}	$I_{Fnom} = 225 \text{ A}$		240		A
Q_{rr}	$di/dt = 5350 \text{ A}/\mu\text{s}$		31		μC
E_{rr}	$V_{GE} = -15 \text{ V}; V_{CC} = 600 \text{ V}$		11		mJ
$R_{th(j-c)D}$	per diode			0,15	K/W
Module					
L_{CE}			18		nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25 \text{ }^{\circ}\text{C}$	0,7		mΩ
		$T_{case} = 125 \text{ }^{\circ}\text{C}$	1		mΩ
$R_{th(c-s)}$	per module		0,045		K/W
M_s	to heat sink (M5)		3	5	Nm
M_t	to terminals (M6)		2,5	5	Nm
w				250	g
Temperature sensor					
R_{100}	$T_c = 100 \text{ }^{\circ}\text{C}$ ($R_{25} = 5 \text{ k}\Omega$)		0,493±5%		kΩ
$B_{100/125}$	$R(T) = R_{100} \exp[B_{100/125}(1/T - 1/T_{100})]$; $T[\text{K}]; B$		3550±2%		K

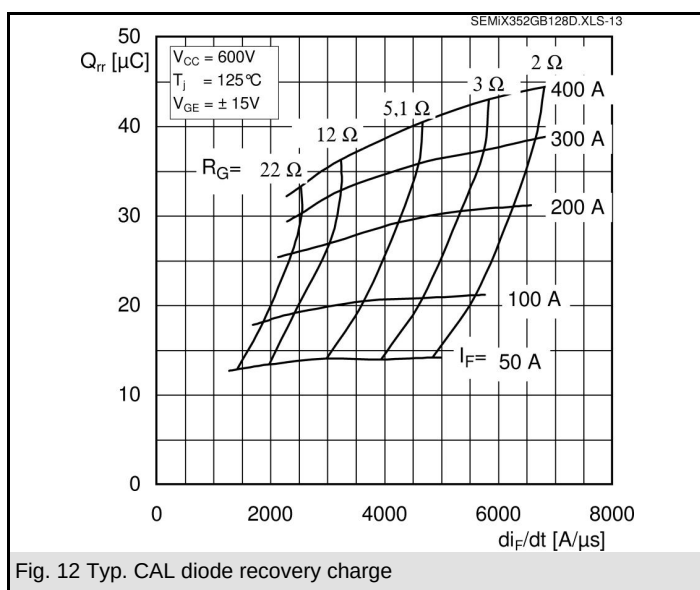
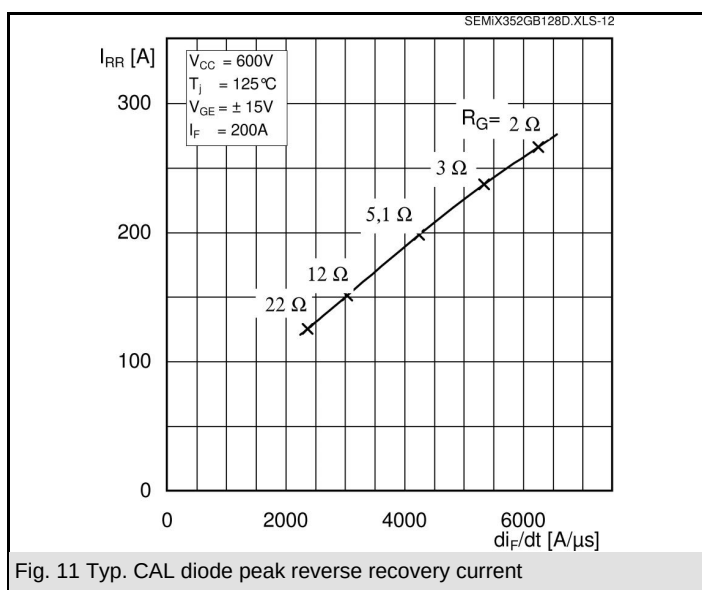
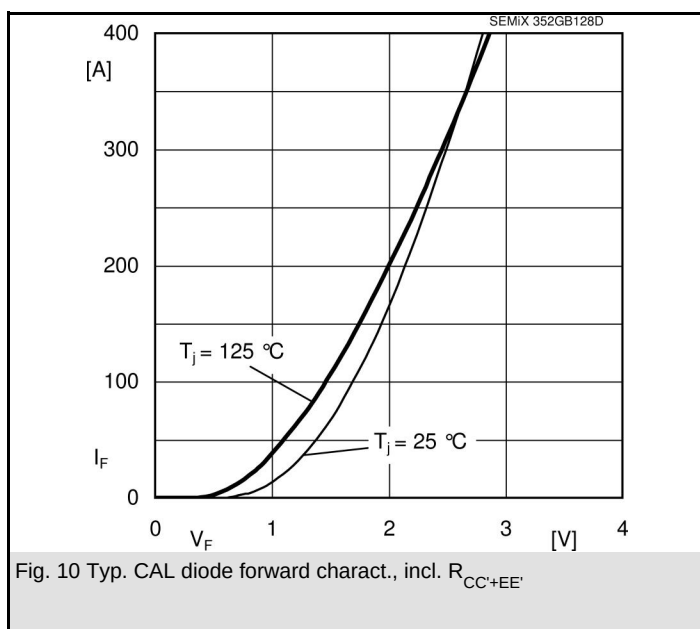
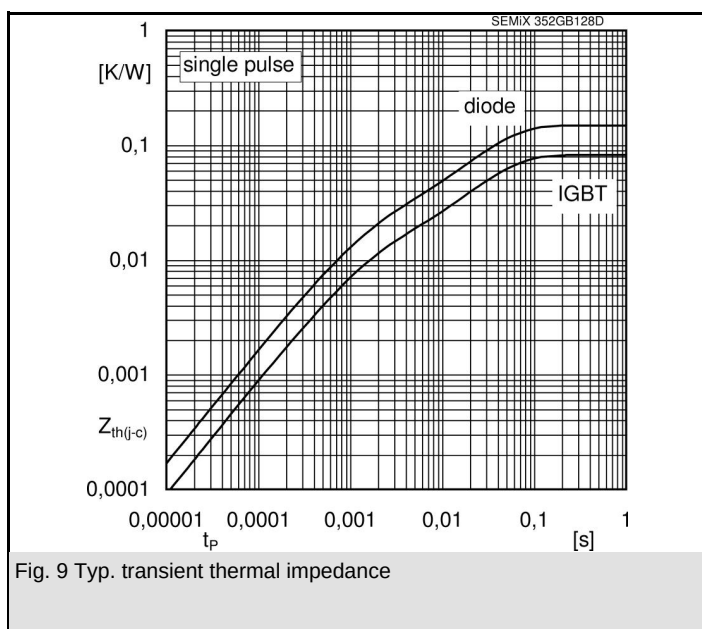
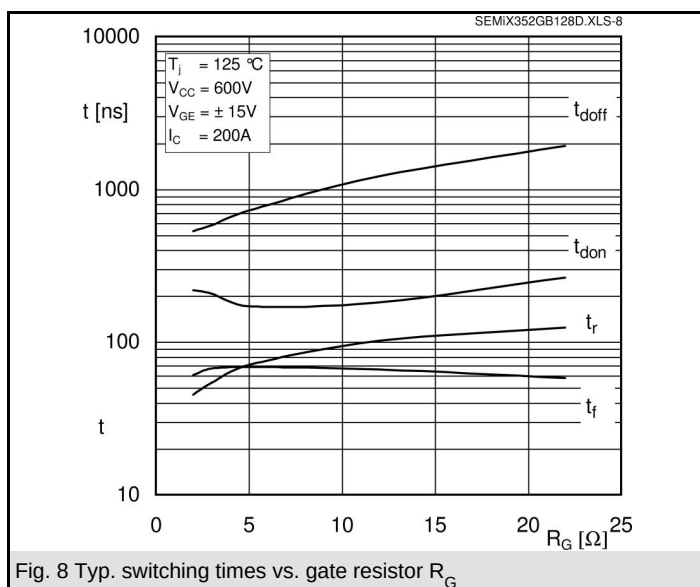
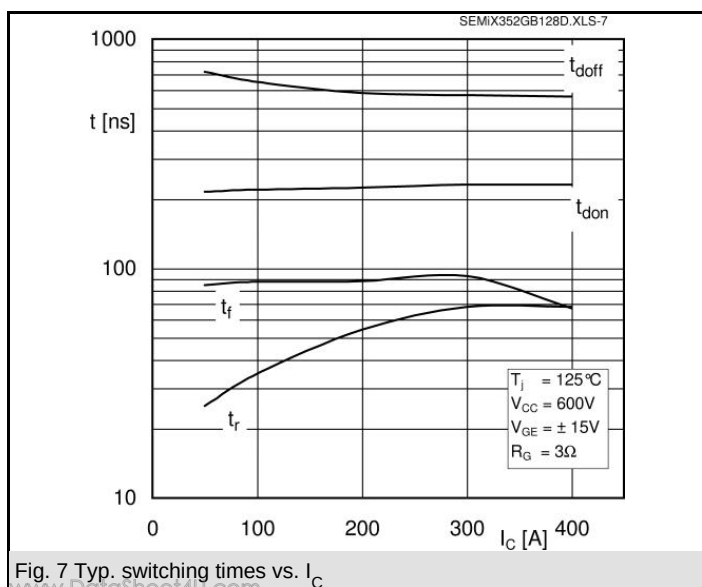
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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



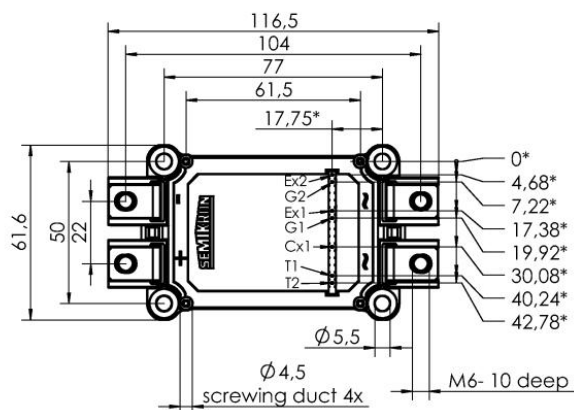
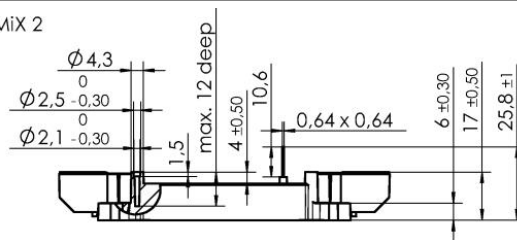
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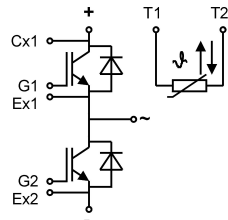
SEMiX 352GB128D

case: SEMiX 2



*= all measures with $\pm 0,5$

Case SEMiX 2



Pinout

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