

SEMiX 604GB176HD

www.DataSheet4U.com



SEMiX® 4

Trench IGBT Modules

SEMiX 604GB176HD

Preliminary Data

Features

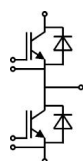
- Homogeneous Si
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability

Typical Applications

- AC inverter drives
- UPS
- Electronic welders

Remarks

- short circuit capability is tested @ $V_{CC}=1000V$ (all other static parameters are tested @ $V_{CC}=1200V$)
- Not for new design



GB

Absolute Maximum Ratings		T _c = 25 °C, unless otherwise specified		
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1700	V
I _C	T _j = 150 °C	T _c = 25 °C	565	A
		T _c = 80 °C	400	A
I _{CRM}	I _{CRM} =2xI _{Cnom}		800	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 1200 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 1700 V		10	µs
Inverse Diode				
I _F	T _j = 150 °C	T _c = 25 °C	735	A
		T _c = 80 °C	495	A
I _{FRM}	I _{FRM} =2xI _{Fnom}		800	A
I _{FSM}	t _p = 10 ms; sin. T _j = 25 °C		2700	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		$T_c = 25\text{ }^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 16\text{ mA}$	5,2	5,8	6,4	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$			0,45	$T_j = 25\text{ }^\circ\text{C}$ mA
					$T_j = 125\text{ }^\circ\text{C}$ mA
V_{CE0}			1	1,2	$T_j = 25\text{ }^\circ\text{C}$ V
					$T_j = 125\text{ }^\circ\text{C}$ V
r_{CE}	$V_{GE} = 0\text{ V}$		2,5	3,1	$T_j = 25\text{ }^\circ\text{C}$ $\text{m}\Omega$
					$T_j = 125\text{ }^\circ\text{C}$ $\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 400\text{ A}, V_{GE} = 15\text{ V}$		2	2,45	$T_j = 25\text{ }^\circ\text{C}_{chiplev.}$ V
					$T_j = 125\text{ }^\circ\text{C}_{chiplev.}$ V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$		35,3		nF
C_{oes}					nF
C_{res}					nF
Q_G	$V_{GE} = -8\text{ V} \dots +15\text{ V}$		3750		nC
$t_{d(on)}$	$R_{Gon} = 3\text{ }\Omega$		360		$V_{CC} = 1200V$ ns
t_r					$I_{Cnom} = 400A$ ns
E_{on}	$R_{Goff} = 3\text{ }\Omega$		215		$T_j = 125\text{ }^\circ\text{C}$ mJ
$t_{d(off)}$					ns
t_f					ns
E_{off}			165		mJ
$R_{th(j-c)}$	per IGBT			0,058	K/W

SEMiX 604GB176HD

www.DataSheet4U.com



SEMiX® 4

Trench IGBT Modules

SEMiX 604GB176HD

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 welders

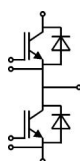
Remarks

- short circuit capability is tested @ $V_{CC}=1000V$ (all other static parameters are tested @ $V_{CC}=1200V$)
- Not for new design

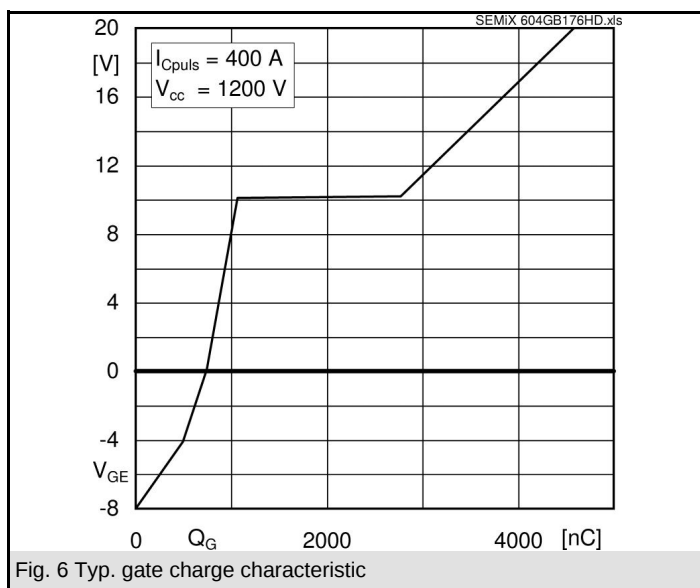
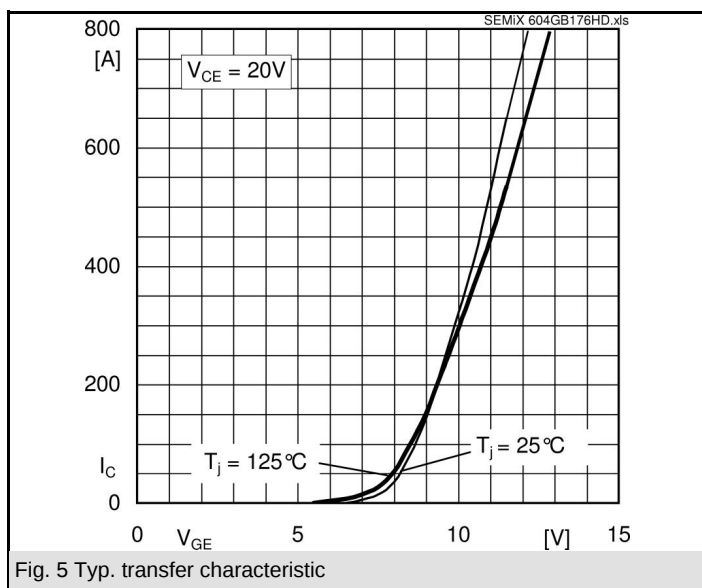
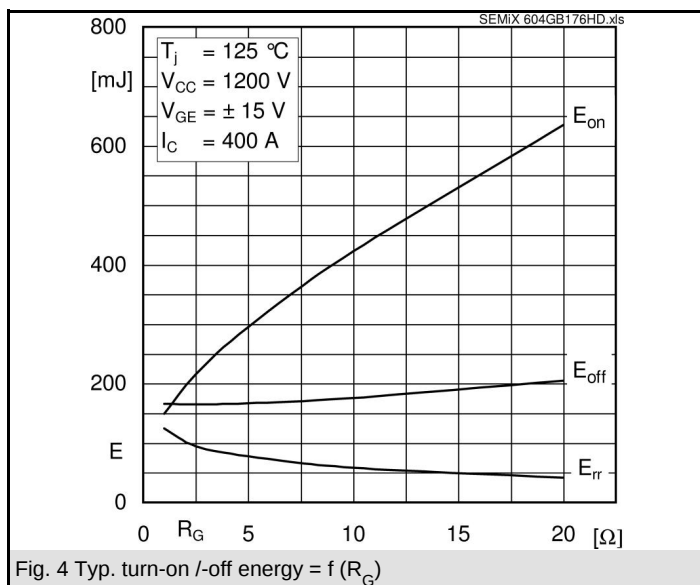
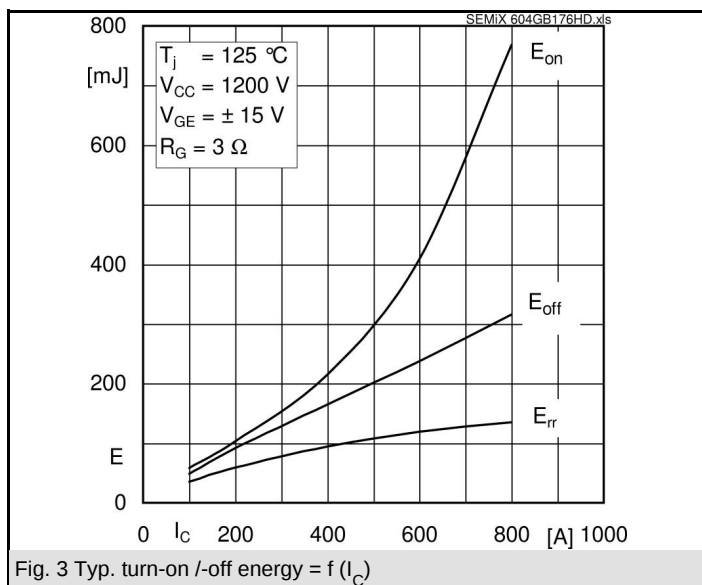
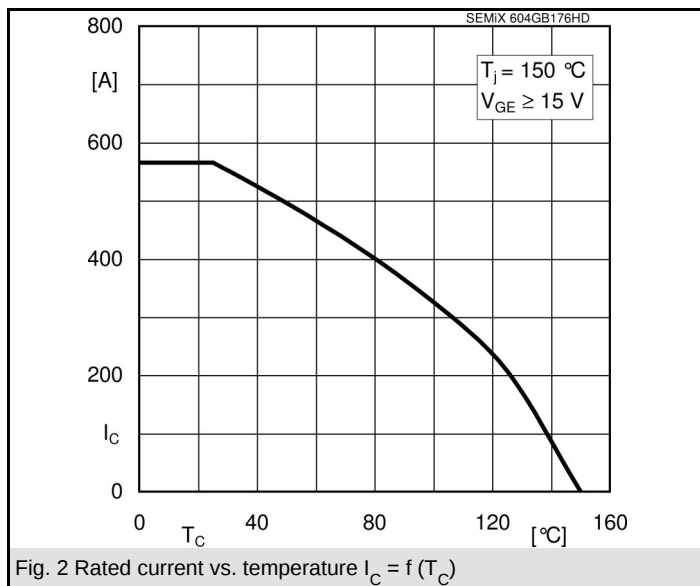
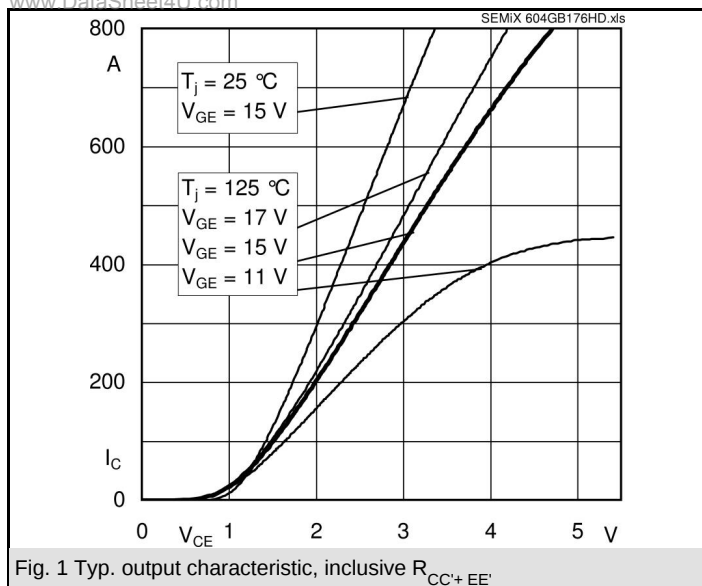
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 400 A$; $V_{GE} = 0 V$				
	$T_j = 25 ^\circ C_{chiplev.}$		1,5	1,7	V
	$T_j = 125 ^\circ C_{chiplev.}$		1,45	1,65	V
V_{F0}	$T_j = 25 ^\circ C$		1,1	1,3	V
	$T_j = 125 ^\circ C$		0,9	1,1	V
r_F	$T_j = 25 ^\circ C$		1		mΩ
	$T_j = 125 ^\circ C$		1,3		mΩ
I_{RRM}	$I_{Fnom} = 400 A$		560		A
Q_{rr}	$di/dt = 6600 A/\mu s$		131		μC
E_{rr}	$V_{GE} = -15 V$; $V_{CC} = 1200 V$		95		mJ
$R_{th(j-c)D}$	per diode			0,081	K/W
Module					
L_{CE}			22		nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25 ^\circ C$	0,7		mΩ
		$T_{case} = 125 ^\circ C$	1		mΩ
$R_{th(c-s)}$	per module		0,03		K/W
M_s	to heat sink M5		3	5	Nm
M_t	to terminals M6		2,5	5	Nm
w				400	g
Temperature sensor					
R_{100}	$T_c = 100 ^\circ C$ ($R_{25} = 5 k\Omega$)		0,493±5%		kΩ
$B_{100/125}$	$R(T) = R_{100} \exp[B_{100/125} (1/T - 1/T_{100})]$; $T[K]$; B		3550±2%		K

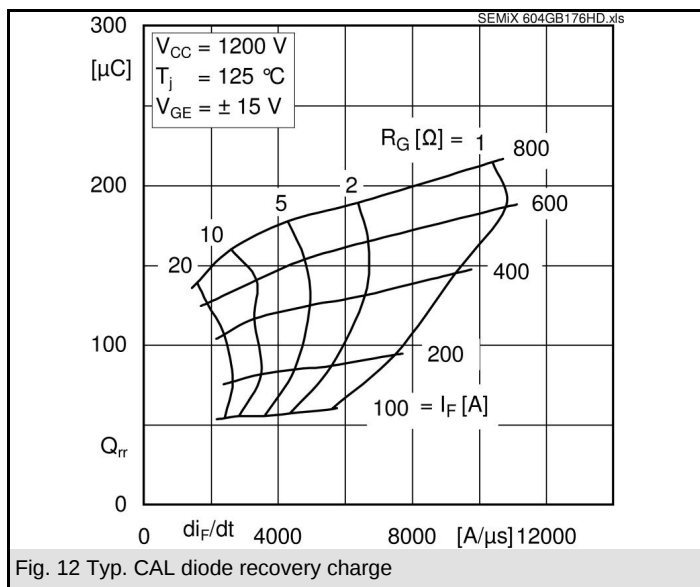
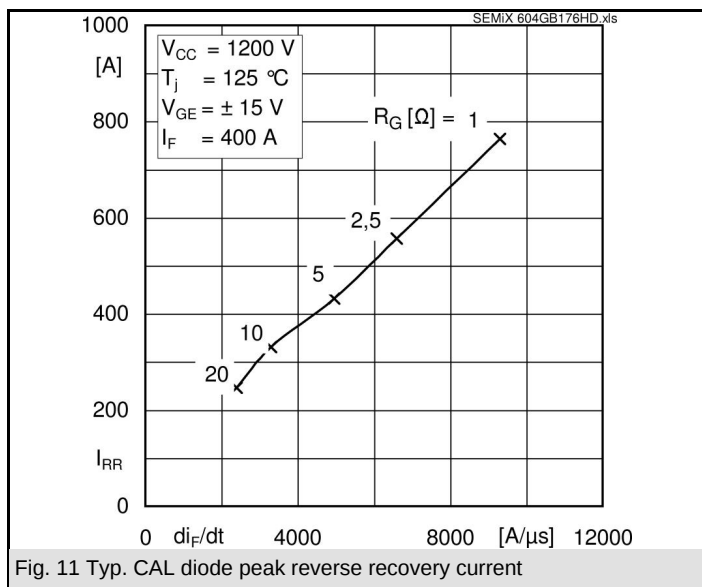
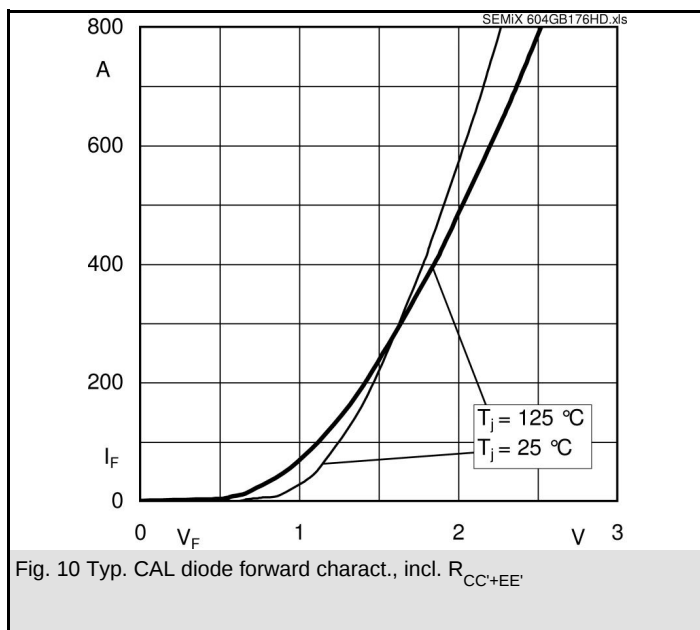
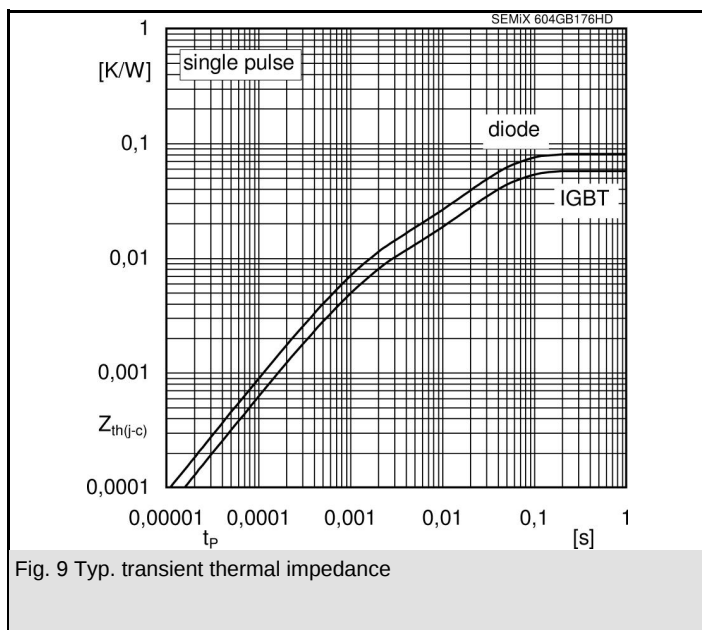
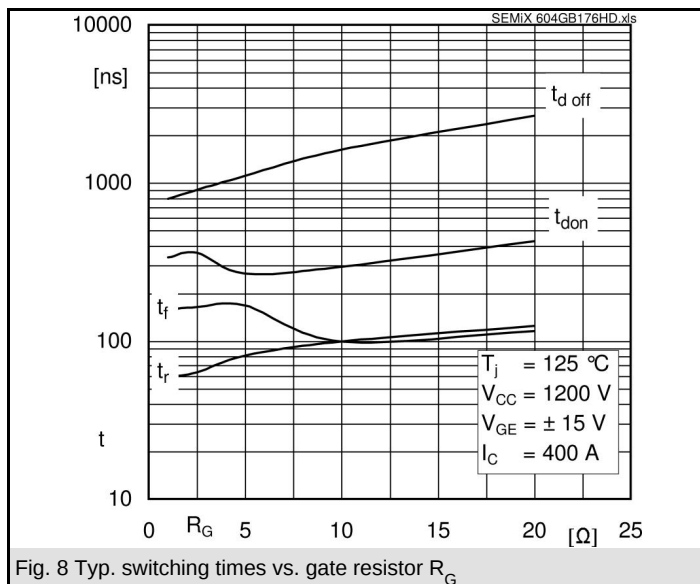
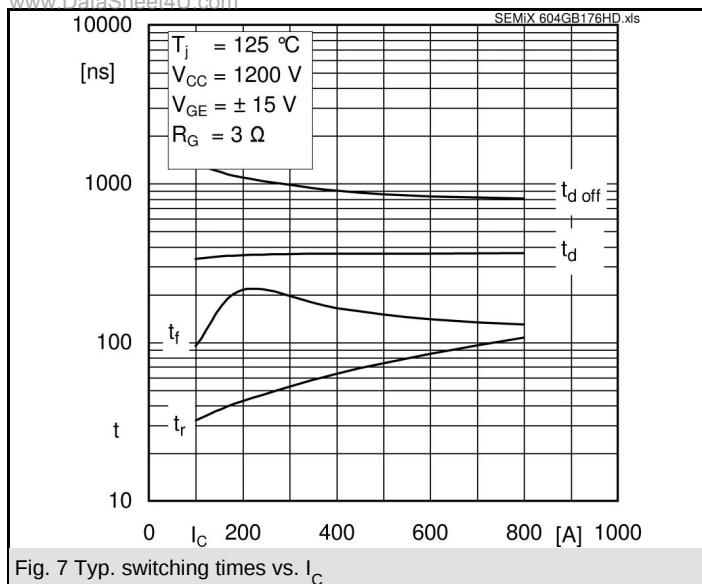
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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



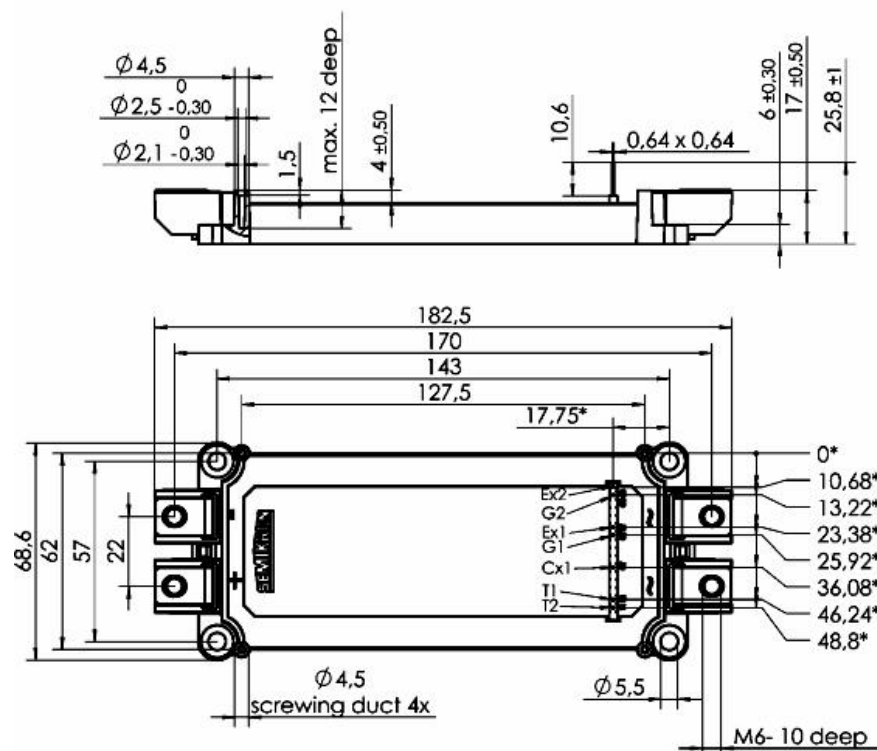
GB





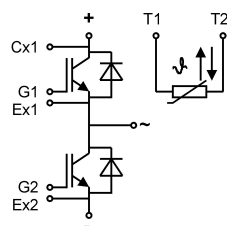
SEMiX 604GB176HD

www.DataSheet4U.com



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

Case SEMiX 4



Pinout

GB