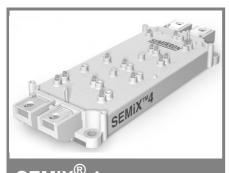
## SEMiX 854GB176HDs



SEMiX<sup>®</sup> 4s

### **Trench IGBT Modules**

#### SEMiX 854GB176HDs

### Target Data

#### Features

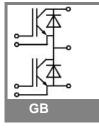
- Homogeneous Si
- Trench = Trenchgate technology
- V<sub>CE(sat)</sub> with positive temperature coefficient
- High short circuit capability

#### **Typical Applications**

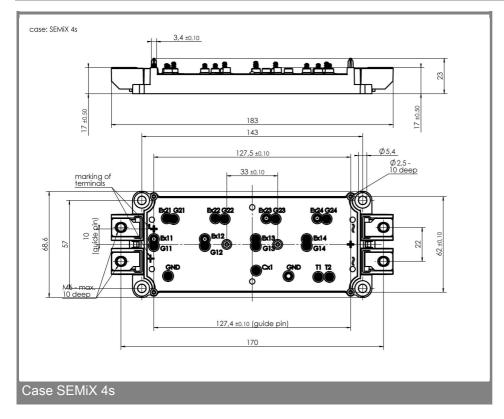
- AC inverter drives
- UPS
- Electronic welders

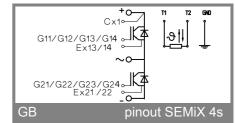
Absolute Maximum Ratings		$_{\rm c}$ = 25 °C, unless otherwise specified							
Symbol	Conditions	Values	Units						
IGBT									
V <sub>CES</sub>		1700	V						
I <sub>C</sub>	T <sub>c</sub> = 25 (80) °C	830 (590)	А						
I <sub>CRM</sub>	$t_p = 1 \text{ ms}$	1200	Α						
V <sub>GES</sub>		± 20	V						
T <sub>vj</sub> , (T <sub>stg</sub> )	$T_{OPERATION} \le T_{stg}$	- 40 + 150 (125)	°C						
V <sub>isol</sub>	AC, 1 min.	4000	V						
Inverse diode									
I <sub>F</sub>	T <sub>c</sub> = 25 (80) °C	590 (370)	А						
I <sub>FRM</sub>	t <sub>p</sub> = 1 ms	1200	А						
I <sub>FSM</sub>	t <sub>p</sub> = 10 ms; sin.; T <sub>j</sub> = 25 °C	1550	А						

Characteristics		$T_c = 25 \text{ °C}$ , unless otherwise specified						
Symbol	Conditions	min.	typ.	max.	Units			
IGBT								
V <sub>GE(th)</sub>	$V_{GE} = V_{CE}$ , $I_C = 24 \text{ mA}$	5,2	5,8	6,4	V			
I <sub>CES</sub>	$V_{GE} = 0, V_{CE} = V_{CES}, T_{j} = 25 (125) °C$			3,6	mA			
V <sub>CE(TO)</sub>	$T_j = 25 (125) °C$		1 (0,9)	1,2 (1,1)	V			
r <sub>CE</sub>	$V_{GE} = 0 \text{ V}, \text{ T}_{j} = 25 (125) \text{ °C}$		1,7 (2,6)		mΩ			
V <sub>CE(sat)</sub>	I <sub>Cnom</sub> = 600 A, V <sub>GE</sub> = 15 V,		2 (2,45)	2,45 (2,9)	V			
	T <sub>j</sub> = 25 (125) °C, chip level							
C <sub>ies</sub>	under following conditions		39,6		nF			
C <sub>oes</sub>	V <sub>GE</sub> = 0, V <sub>CE</sub> = 25 V, f = 1 MHz		2,2		nF			
C <sub>res</sub>			1,8		nF			
L <sub>CE</sub>			22		nH			
R <sub>CC'+EE'</sub>	terminal-chip, T <sub>c</sub> = 25 (125) °C				mΩ			
t <sub>d(on)</sub> /t <sub>r</sub>	V <sub>CC</sub> = 1200 V, I <sub>Cnom</sub> = 600 A		410 / 70		ns			
t <sub>d(off)</sub> /t <sub>f</sub>	$V_{GE} = = \pm 15 V$		775 / 145		ns			
E <sub>on</sub> (E <sub>off</sub> )	$R_{Gon} = R_{Goff} = 1 \Omega, T_j = 125 $ °C		298 (202)		mJ			
Inverse d		•			•			
$V_F = V_{EC}$	I <sub>Fnom</sub> = 600 A; V <sub>GE</sub> = 0 V; T <sub>j</sub> = 25 (125) °C, chip level		2 (2,1)	2,2 (2,3)	V			
V <sub>(TO)</sub>	T <sub>i</sub> = 25 (125) °C		1,1 (0,9)	1,3 (1,1)	V			
r <sub>T</sub>	T <sub>i</sub> = 25 (125) °C		1,5 (2)	1,5 (2)	mΩ			
I <sub>RRM</sub>	I <sub>Fnom</sub> = 600 A; T <sub>j</sub> = 25 (125) °C		(825)		А			
Q <sub>rr</sub>	di/dt = 10000 A/µs		(230)		μC			
E <sub>rr</sub>	V <sub>GE</sub> = -15 V		(172)		mJ			
Thermal	characteristics	•			•			
R <sub>th(j-c)</sub>	per IGBT			0,039	K/W			
R <sub>th(j-c)D</sub>	per Inverse Diode			0,09	K/W			
R <sub>th(j-c)FD</sub>	per FWD				K/W			
R <sub>th(c-s)</sub>	per module		0,03		K/W			
	ture sensor							
R <sub>25</sub>	$T_c = 25 \text{ °C}$		5 ±5%		kΩ			
B <sub>25/85</sub>	R <sub>2</sub> =R <sub>1</sub> exp[B(1/T <sub>2</sub> -1/T <sub>1</sub> )] ; T[K];B		3420		к			
Mechanical data								
M <sub>s</sub> /M <sub>t</sub>	to heatsink (M5) / for terminals (M6)	3/2,5		5 /5	Nm			
W		, -	390		g			
		1			J			



# SEMiX 854GB176HDs





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.