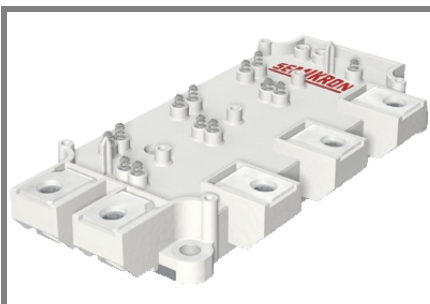


# SEMiX 201GD128Ds



**SEMiX® 13s**

## SPT IGBT Modules

### SEMiX 201GD128Ds

Preliminary Data

#### Features

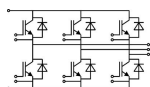
- Homogeneous Si
- SPT = Soft-Punch-Through technology
- $V_{CE(sat)}$  with positive temperature coefficient
- High short circuit capability

#### Typical Applications

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

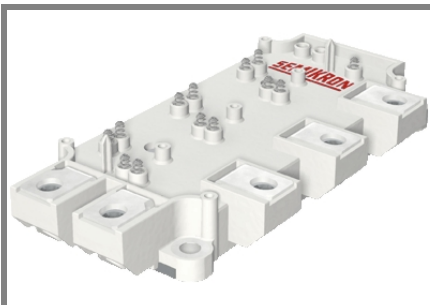
Absolute Maximum Ratings		$T_{case} = 25^{\circ}C$ , unless otherwise specified			
Symbol	Conditions	Values			Units
<b>IGBT</b>					
$V_{CES}$	$T_j = 25^{\circ}C$	1200			V
$I_C$	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	200		A
		$T_{case} = 80^{\circ}C$	140		A
$I_{CRM}$	$I_{CRM} = 2 \times I_{Cnom}$	200			A
$V_{GES}$		$\pm 20$			V
$t_{psc}$	$V_{CC} = 600 V$ ; $V_{GE} \leq 20 V$ ; $T_j = 125^{\circ}C$ $V_{CES} < 1200 V$	10			$\mu s$
<b>Inverse Diode</b>					
$I_F$	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	155		A
		$T_{case} = 80^{\circ}C$	105		A
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}$	200			A
$I_{FSM}$	$t_p = 10 ms$ ; sin.	$T_j = 25^{\circ}C$	1100		A
<b>Module</b>					
$I_{t(RMS)}$		600			A
$T_{vj}$		-40 ... +150			$^{\circ}C$
$T_{stg}$		-40 ... +125			$^{\circ}C$
$V_{isol}$	AC, 1 min.	4000			V

Characteristics		$T_{case} = 25^{\circ}C$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT</b>					
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 4 mA$	4,5	5	6,5	V
$I_{CES}$	$V_{GE} = 0 V$ , $V_{CE} = V_{CES}$			0,3	mA
$V_{CE0}$		$T_j = 25^{\circ}C$	1		V
		$T_j = 125^{\circ}C$	0,9		V
$r_{CE}$	$V_{GE} = 15 V$	$T_j = 25^{\circ}C$	9		$m\Omega$
		$T_j = 125^{\circ}C$	12		$m\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 100 A$ , $V_{GE} = 15 V$	$T_j = 25^{\circ}C_{chiplev.}$	1,9		V
		$T_j = 125^{\circ}C_{chiplev.}$	2,1		V
$C_{ies}$	$V_{CE} = 25$ , $V_{GE} = 0 V$	9,4			nF
$C_{oes}$		0,6			nF
$C_{res}$		0,4			nF
$Q_G$	$V_{GE} = -8 V \dots +15 V$	960			nC
$t_{d(on)}$	$R_{Gon} = 4 \Omega$	$V_{CC} = 600V$ $I_{Cnom} = 100A$	250		ns
$t_r$			45		ns
$E_{on}$	$R_{Goff} = 4 \Omega$	$T_j = 125^{\circ}C$	10		mJ
$t_{d(off)}$			445		ns
$t_f$			60		ns
$E_{off}$			11		mJ
$R_{th(j-c)}$	per IGBT	0,15			K/W



GD

# SEMiX 201GD128Ds



**SEMiX® 13s**

## SPT IGBT Modules

### SEMiX 201GD128Ds

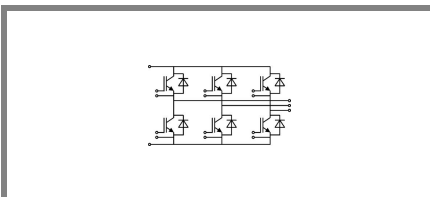
#### Preliminary Data

#### 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

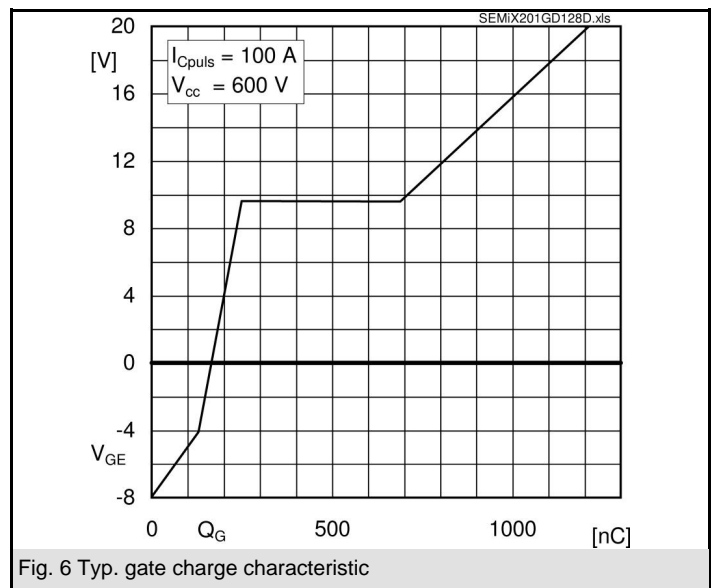
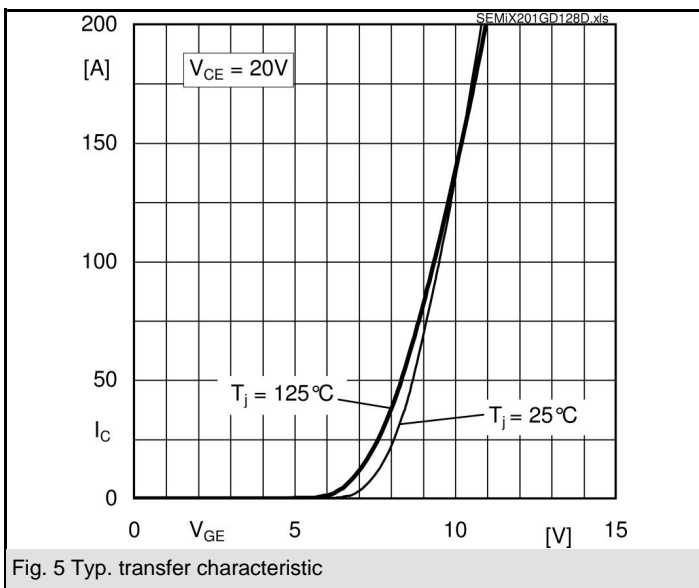
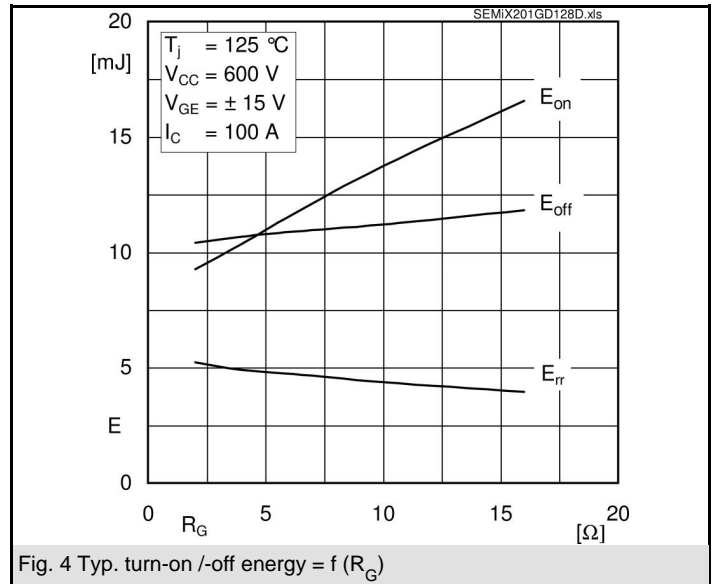
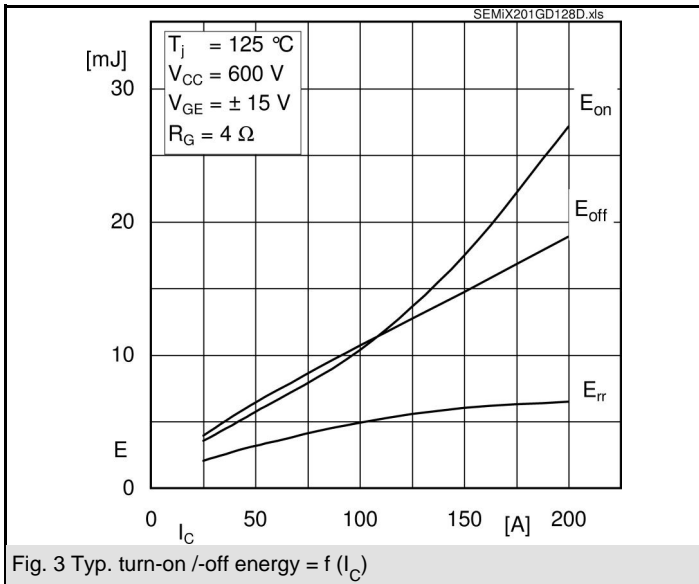
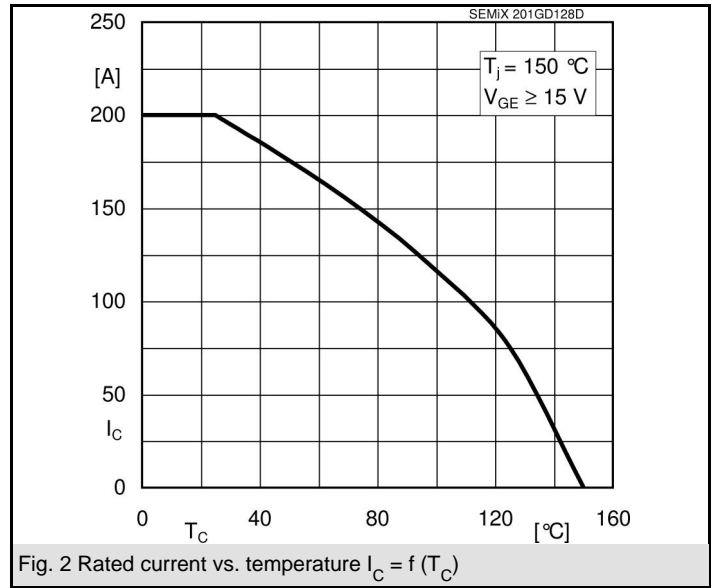
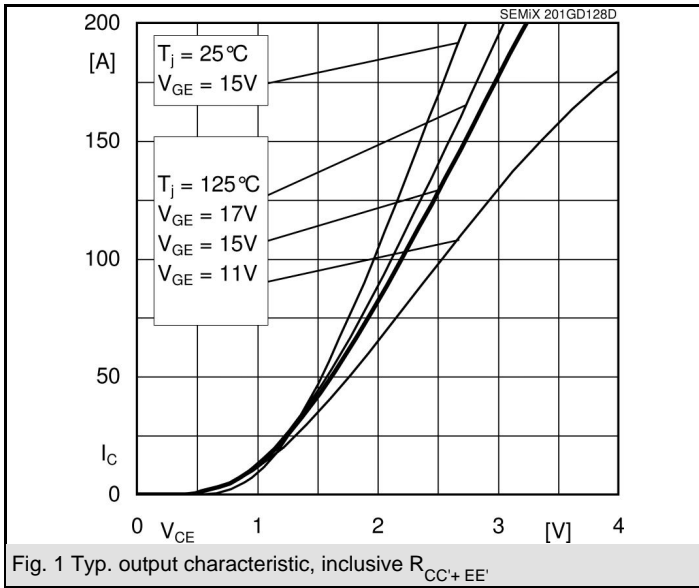


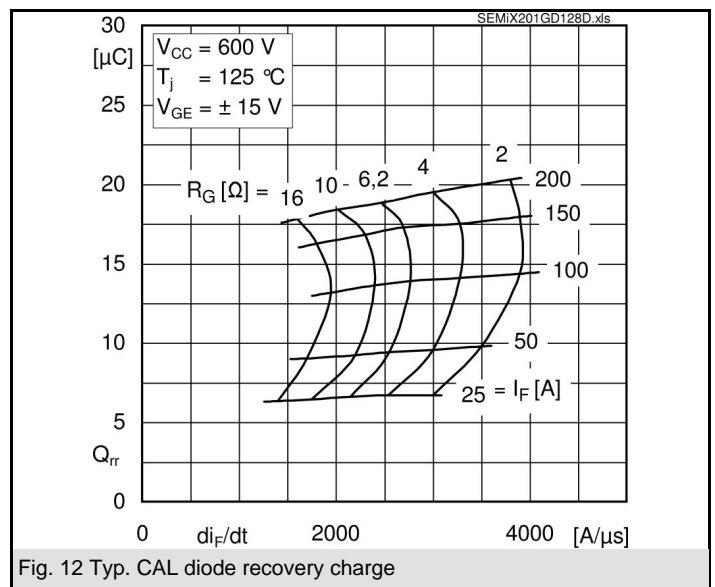
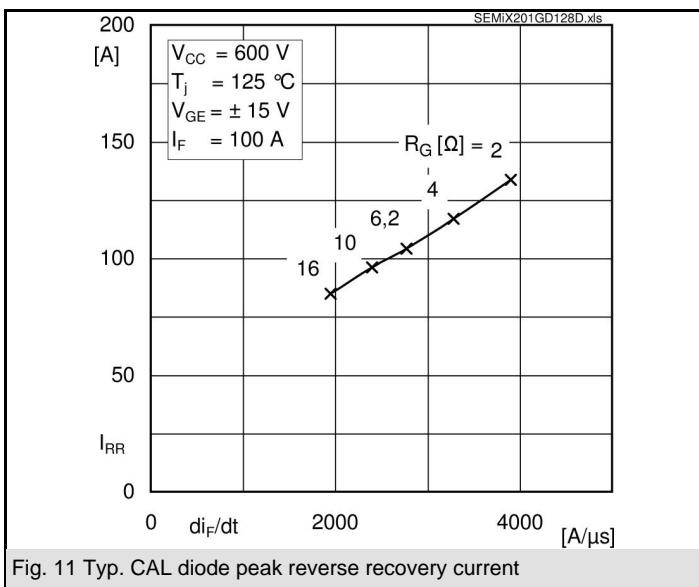
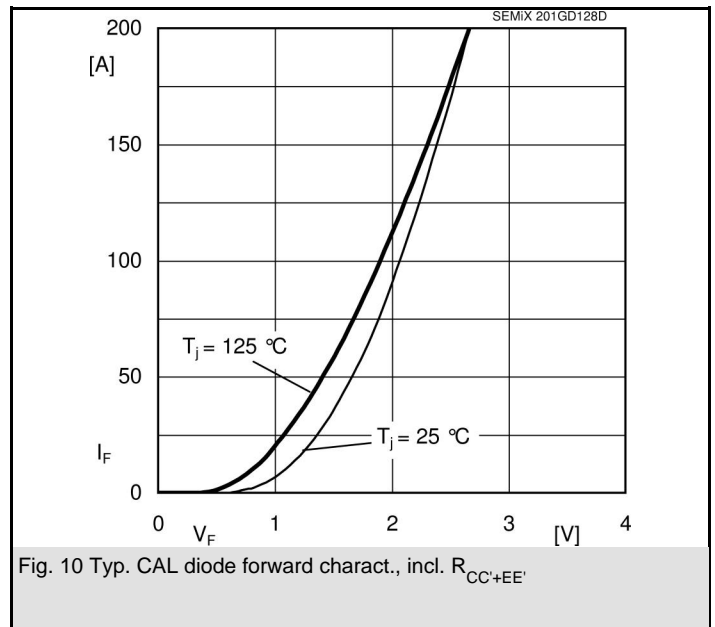
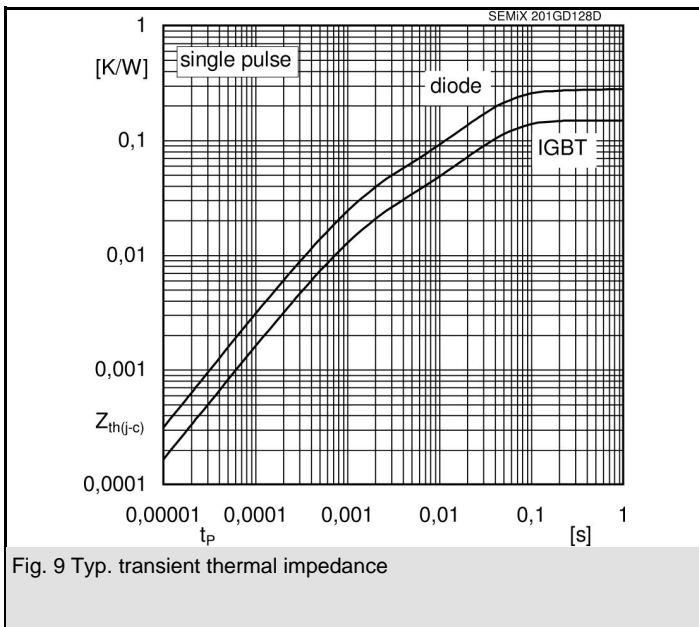
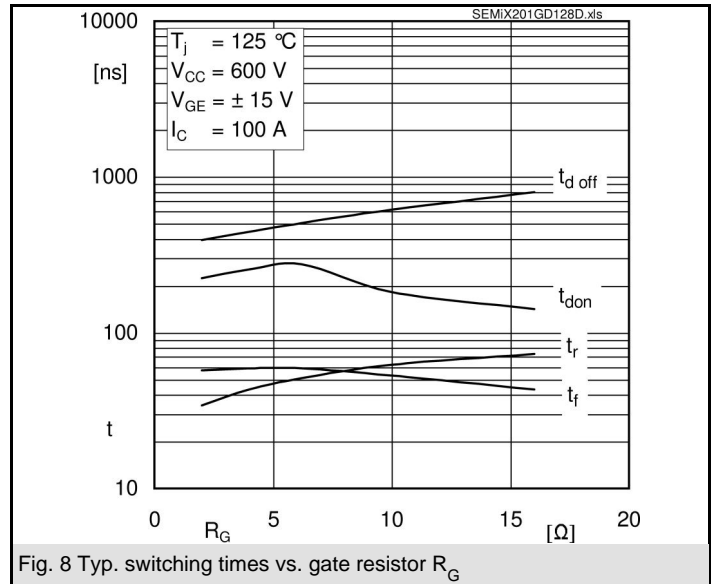
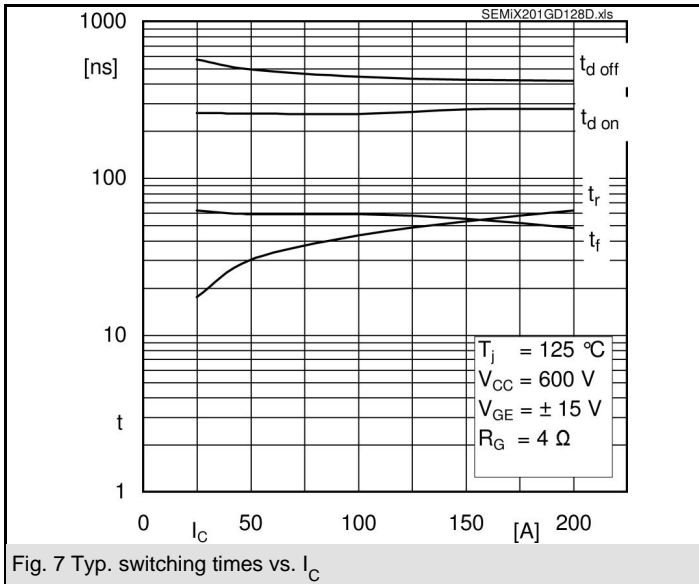
**GD**

Characteristics		min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 100 \text{ A}; V_{GE} = 0 \text{ V}$		2	2,5	V
	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$				
	$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$		1,8	2,3	V
$V_{F0}$			1,1	1,45	V
	$T_j = 25 \text{ }^\circ\text{C}$				
	$T_j = 125 \text{ }^\circ\text{C}$		0,85	1,2	V
$r_F$			9	10,5	mΩ
	$T_j = 25 \text{ }^\circ\text{C}$				
	$T_j = 125 \text{ }^\circ\text{C}$		9,5	11	mΩ
$I_{RRM}$	$I_{Fnom} = 100 \text{ A}$		120		A
$Q_{rr}$	$di/dt = 3300 \text{ A}/\mu\text{s}$		14		μC
$E_{rr}$	$V_{GE} = -15 \text{ V}; V_{CC} = 600 \text{ V}$		4,9		mJ
$R_{th(j-c)D}$	per diode			0,28	K/W
<b>Module</b>					
$L_{CE}$			20		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		0,04		K/W
$M_s$	to heat sink (M5)		3	5	Nm
$M_t$	to terminals (M6)		2,5	5	Nm
w				350	g
<b>Temperature sensor</b>					
$R_{100}$	$T_c = 100 \text{ }^\circ\text{C}$ ( $R_{25} = 5 \text{ k}\Omega$ )		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

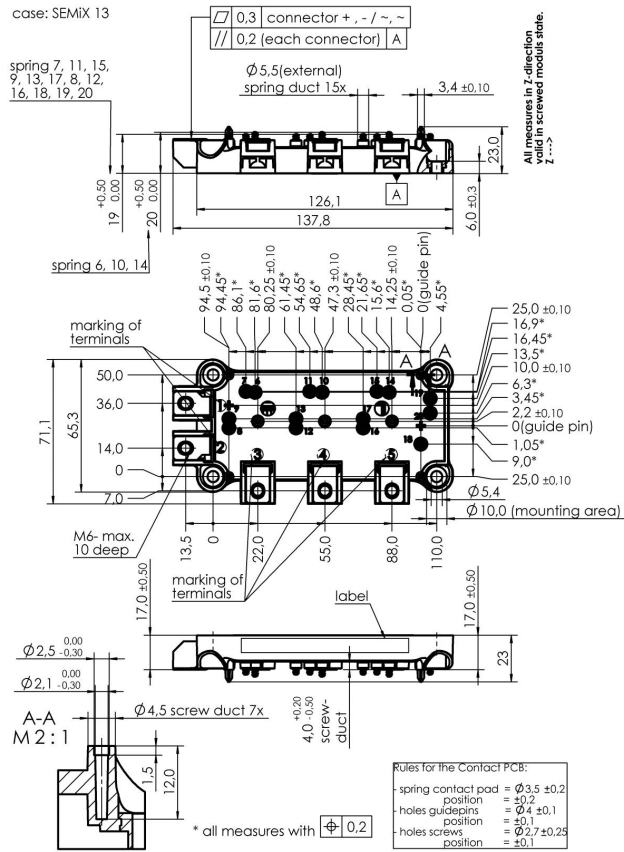
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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





# SEMiX 201GD128Ds



Case SEMiX 3

