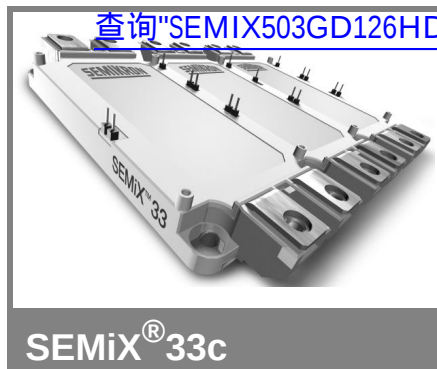


SEMiX 503GD126HDc



Trench IGBT Modules

SEMiX 503GD126HDc

Preliminary Data

Features

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

Typical Applications

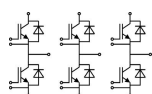
- AC inverter drives
- UPS
- Electronic Welding

Remarks

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

Absolute Maximum Ratings				$T_{case} = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions		Values	Units	
IGBT					
V_{CES}	$T_j = 25^\circ\text{C}$		1200	V	
I_C	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	465	A	
		$T_c = 80^\circ\text{C}$	330	A	
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$		600	A	
V_{GES}			± 20	V	
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125^\circ\text{C}$ $V_{CES} < 1200\text{ V}$		10	μs	
Inverse Diode					
I_F	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	410	A	
		$T_c = 80^\circ\text{C}$	285	A	
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$		600	A	
I_{FSM}	$t_p = 10\text{ ms; sin.}$	$T_j = 25^\circ\text{C}$	2000	A	
Module					
$I_{t(RMS)}$			600	A	
T_{vj}			- 40 ... + 150	$^\circ\text{C}$	
T_{stg}			- 40 ... + 125	$^\circ\text{C}$	
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 = 12 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	1,2	V
		T _j = 125 °C		0,9	1,1	V
r _{CE}	V _{GE} = 15 V	T _j = 25°C		2,3	3,2	mΩ
		T _j = 125°C		3,7	4,5	mΩ
V _{CE(sat)}	I _{Cnom} = 300 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		21,6		nF
C _{oes}				1,13		nF
C _{res}				0,98		nF
Q _G	V _{GE} = -8 ... +15V			2400		nC
t _{d(on)}	R _{Gon} = 2,2 Ω	V _{CC} = 600V I _{Cnom} = 300A T _j = 125 °C		275		ns
t _r				55		ns
E _{on}			28		mJ	
t _{d(off)}	R _{Goff} = 2,2 Ω			625		ns
t _f				125		ns
E _{off}			44		mJ	
R _{th(j-c)}	per IGBT				0,08	K/W



GB

SEMiX 503GD126HDc



Trench IGBT Modules

SEMiX 503GD126HDc

Preliminary Data

Features

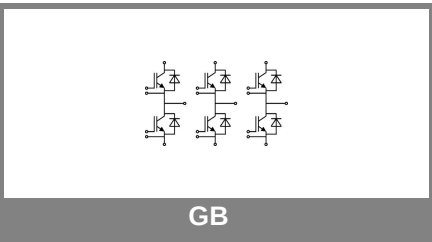
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Typical Applications

- AC inverter drives
- UPS
- Electronic Welding

Remarks

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



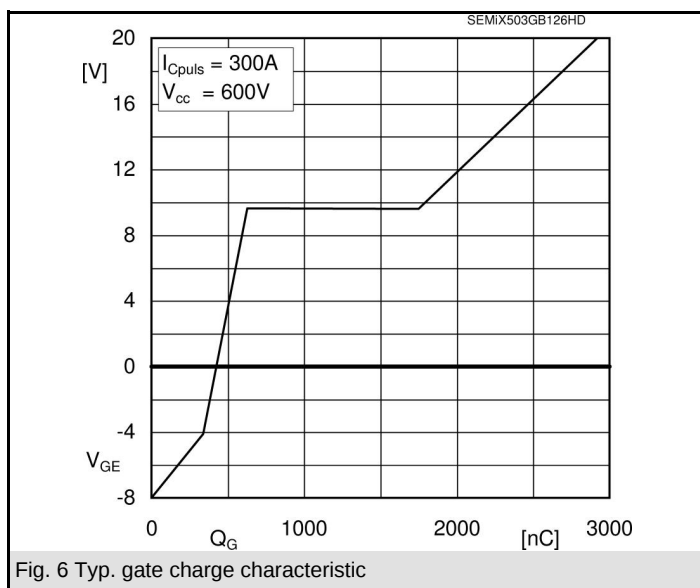
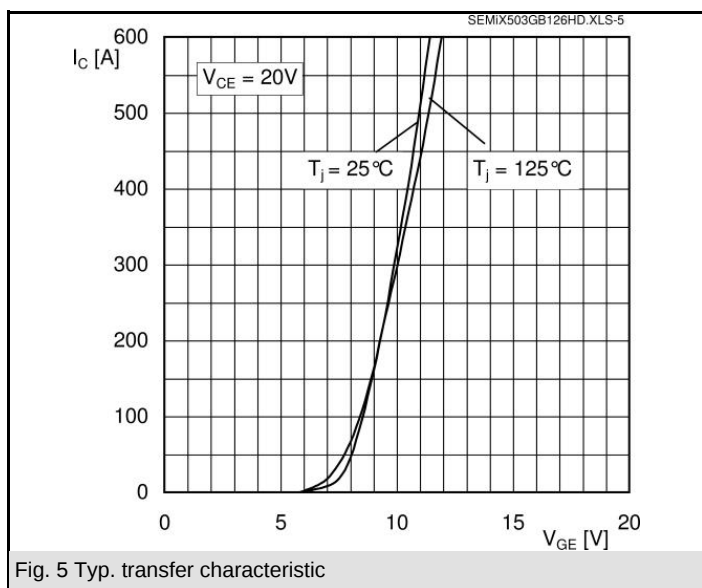
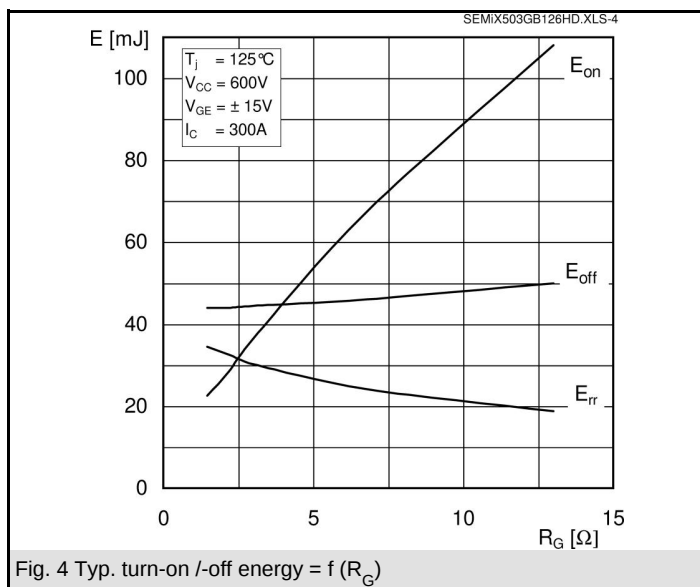
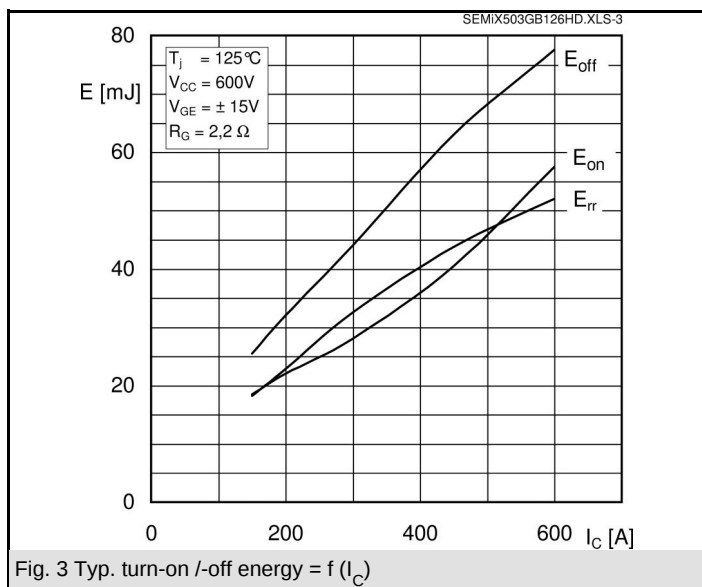
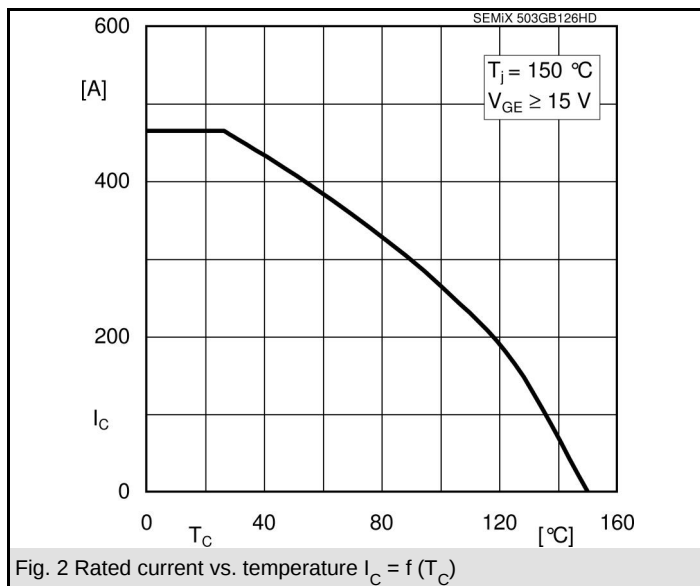
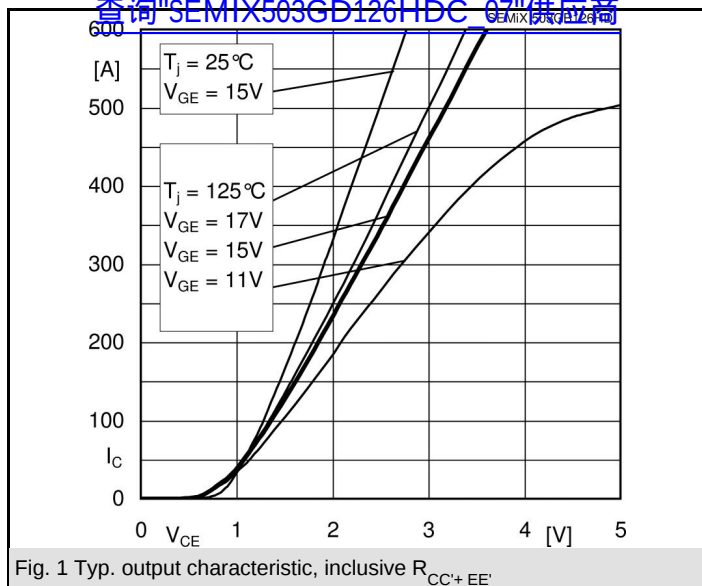
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Characteristics					
Symbol	Conditions		min.	typ.	max. Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 300\text{ A}; V_{GE} = 0\text{ V}$	$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$		1,6	1,8 V
		$T_j = 125\text{ }^{\circ}\text{C}_{chiplev.}$		1,6	1,8 V
V_{F0}		$T_j = 25\text{ }^{\circ}\text{C}$		1	1,1 V
		$T_j = 125\text{ }^{\circ}\text{C}$		0,8	0,9 V
r_F		$T_j = 25\text{ }^{\circ}\text{C}$		2	2,3 mΩ
		$T_j = 125\text{ }^{\circ}\text{C}$		2,7	3 mΩ
I_{RRM}	$I_{Fnom} = 300\text{ A}$	$T_j = 125\text{ }^{\circ}\text{C}$		400	A
Q_{rr}	$di/dt = 6900\text{ A}/\mu\text{s}$			77	μC
E_{rr}	$V_{GE} = -15\text{ V}; V_{CC} = 600\text{ V}$			32,5	mJ
$R_{th(j-c)D}$	per diode				0,14 K/W
Module					
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			0,014	K/W
M_s	to heat sink (M5)		3		5 Nm
M_t	to terminals (M6)		2,5		5 Nm
w					900 g
Temperature sensor					
R_{100}	$T_c=100^{\circ}\text{C}$ ($R_{25}=5\text{ k}\Omega$)			0,493±5%	kΩ
$B_{100/125}$	$R(T)=R_{100}\exp[B_{100/125}(1/T-1/T_{100})]$; $T[K]; B$			3550±2%	K

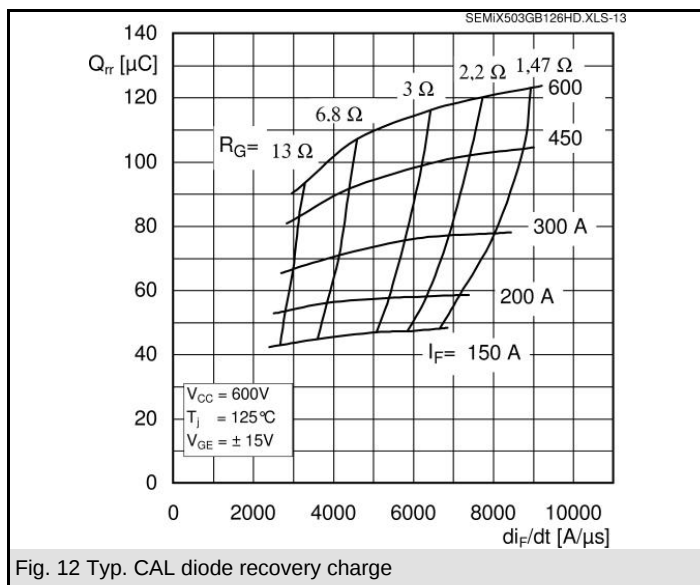
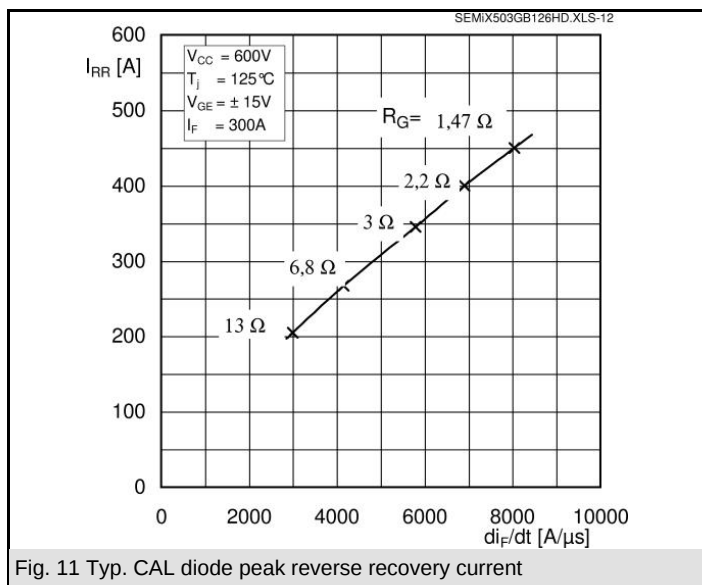
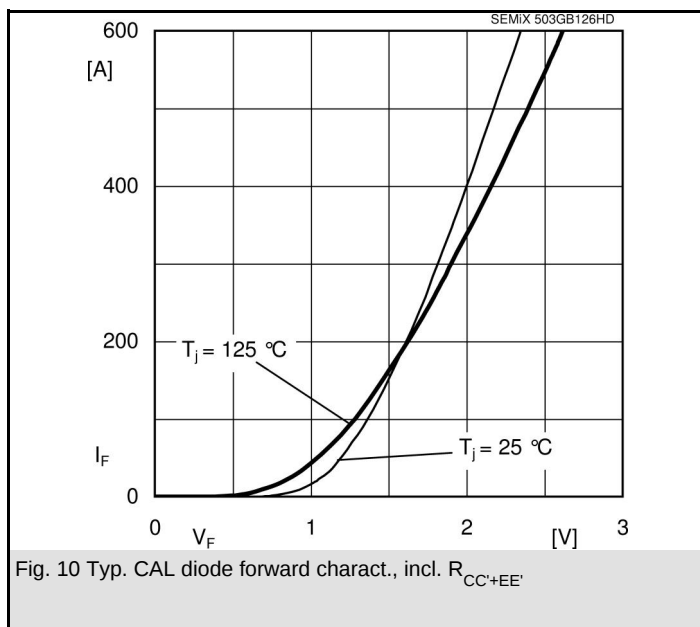
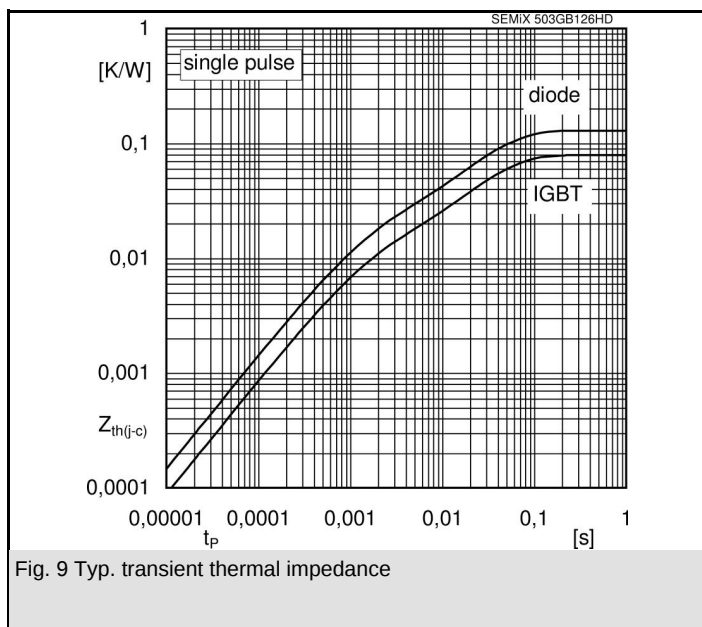
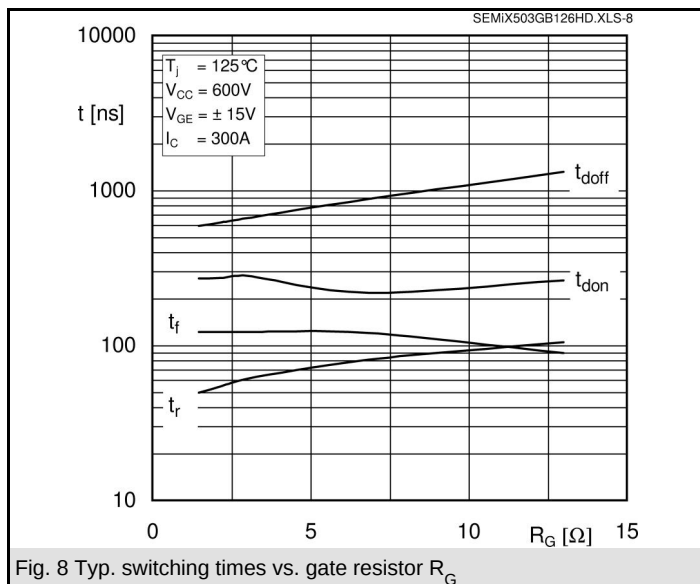
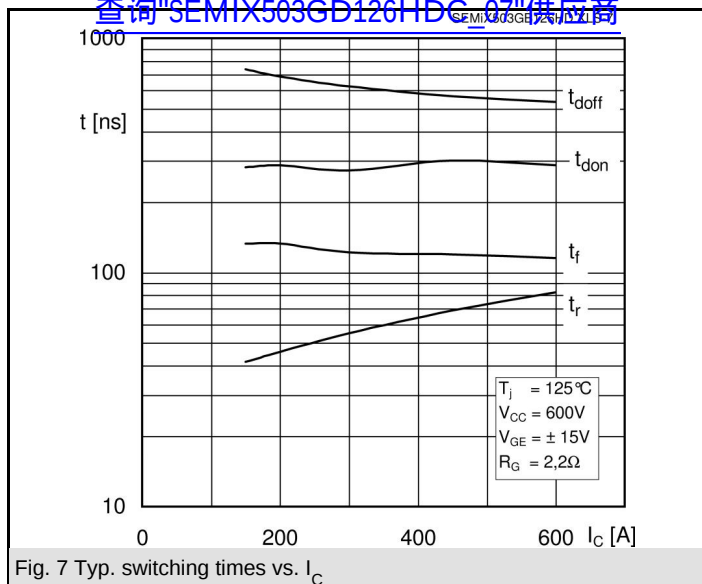
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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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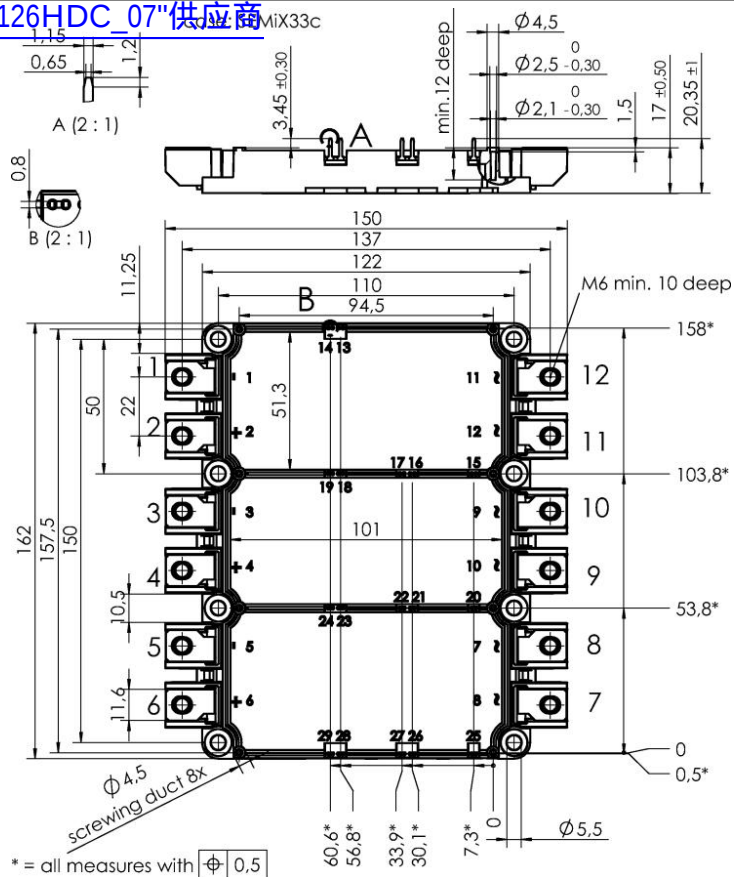


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