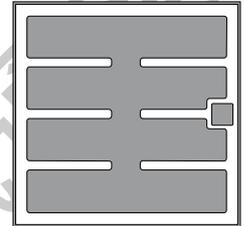


X2PT IGBT Chip



Type	V _{CE} [V]	I _C [A]	Chip Size [mm] x [mm]	Package	Ordering Code
IX183X12M2	1200	150	13.55 13.55	sawn on foil <input type="checkbox"/>	-
				unsawn wafer <input type="checkbox"/>	-
				in waffle pack <input checked="" type="checkbox"/>	tbd


Features / Advantages:

- T_{vjm} = 175°C
- Easy paralleling due to the positive temperature coefficient of the on-state voltage
- Rugged X2PT design (2nd generation Xtreme light Punch Through)
 - short circuit rated for 10 µsec.
 - improved trade-off
 - low switching losses
 - low EMI
- Thin wafer technology combined with the X2PT design results in a competitive low V_{ce(sat)}

Applications:

- AC motor drives
- Solar inverter
- Medical equipment
- Uninterruptible power supply
- Air-conditioning systems
- Welding equipment

Mechanical Parameters

Parameters	Conditions	Orientation	Rating	Unit
Area active			155.9	mm ²
Area total			183.60	mm ²
Wafer size Ø			150	mm
Thickness			130	µm
Material	Si	Orientation	<100>	
Max. possible chips	per wafer		61	
Passivation	front side		SiN	
Metalization	top side		AlSi	
	backside		Al / Ti / Ni / Ag	
Recom. wire bonds (Al)	Emitter	Number / Ø	12 / 300	- / µm
	Gate	Number / Ø	1 / 300	- / µm
Reject Ink Dot Size	Ø		0.4-1.0	mm
Recom. Storage Environment	in orig. container, in dry nitrogen		< 6	month
	Storage Temperature (T _{stg})		-40 ... 40	°C
Virtual junction temperature T _{vj}			-40 ... 175	°C

Terms Conditions of usage

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of our product, please contact the sales office, which is responsible for you. Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the Product in aviation applications, in health or life endangering or life support applications, please notify. For any such applications we urgently recommend

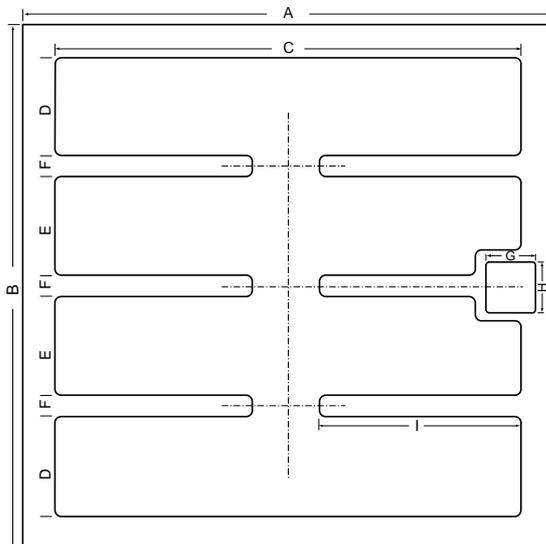
- to perform joint Risk and Quality Assessments;
- the conclusion of Quality Agreements;
- to establish joint measures of an ongoing product survey, and that we may make delivery depended on the realization of any such measures

Electrical Parameters

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
V_{CES}	Collector emitter voltage	$V_{GE} = 0\text{ V}$ $I_C = 1\text{ mA}$ $T_{VJ} = 25^\circ\text{C}$			1200	V
V_{GES}	Maximum DC gate voltage				± 20	V
I_C	Collector current (depending on thermal properties of assembly)			150		A
$V_{CE\text{ sat}}$	Collector emitter saturation voltage	$V_{GE} = 15\text{ V}$ $I_C = 150\text{ A}$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 150^\circ\text{C}$		1.7 2	2	V
V_{T0}	Threshold voltage	$V_{GE} = 15\text{ V};$ $T_{VJ} = 175^\circ\text{C}$			1.2	V
r_T	(for power loss calculation)				7.7	m Ω
I_{CES}	Collector emitter leakage current	$V_{CE} = 1200\text{ V}$ $V_{GE} = 0\text{ V}$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 150^\circ\text{C}$		10 100	100	μA μA
I_{GES}	Gate emitter leakage current	$V_{CE} = 0\text{ V}$ $V_{GE} = \pm 20\text{ V}$			500	nA
$V_{GE(th)}$	Gate emitter threshold voltage	$I_C = 6\text{ mA}$ $V_{CE} = V_{GE}$ $T_{VJ} = 25^\circ\text{C}$	5.5		7	V
Q_{Gon}	Total gate charge	$I_C = 150\text{ A}$ $V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$		520		nC
$R_{G\text{ int}}$	Internal gate resistor					Ω
C_{ies}	Input capacitance	$V_{CE} = 25\text{ V}$ $V_{GE} = 0\text{ V}$ $T_{VJ} = 25^\circ\text{C}$		tbd		nF
C_{oes}	Output capacitance	$f = 1\text{ MHz}$		tbd		pF
C_{res}	Reverse transfer capacitance			tbd		pF
$t_{d(on)}$	Turn-on delay time			100		ns
t_r	Current rise time			50		ns
$t_{d(off)}$	Turn-off delay time	$V_G = 600\text{ V}$ $I_C = 150\text{ A}$		300		ns
t_f	Current fall time	$R_G = 4.7\ \Omega$ $V_{GE} = \pm 15\text{ V}$ $T_{VJ} = 150^\circ\text{C}$		150		ns
E_{on}	Turn-on energy per pulse	measured with: DMHP 107-12		17		mJ
E_{off}	Turn-off energy per pulse			12		mJ
RBSOA	Reverse bias safe operation area	$V_{GE} = 15\text{ V}$ $R_G = 4.7\ \Omega$ $T_{VJ} = 150^\circ\text{C}$ $V_{CE} = 1200\text{ V}$			300	A
SCSOA	Short circuit safe operation area					
t_{sc}	Short circuit duration	$V_{CE} = 800\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $T_{VJ} = 150^\circ\text{C}$			10	μs
I_{sc}	Short circuit current	$R_G = 4.7\ \Omega$ non-repetitive		700		A

Data according to IEC 60747

Dimensions (1 mm = 0.0394")



A	B	C	D	E
[mm]	[mm]	[mm]	[mm]	[mm]
13.55	13.55	12.1	2.73	2.6

F	G	H	I	J
[mm]	[mm]	[mm]	[mm]	[mm]
0.5	1.14	1.18	5.45	n/a