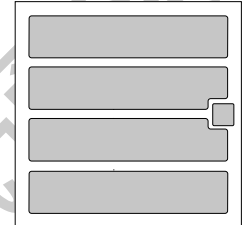


XPT IGBT Chip



Type	V _{CE} [V]	I _C [A]	Chip Size [mm] x [mm]	Package	Ordering Code
IX182X17A	1700	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:

- Easy paralleling due to the positive temperature coefficient of the on-state voltage
- Rugged XPT design (Xtreme light Punch Through) results in:
 - short circuit rated for 10 µsec.
 - very low gate charge
 - square RBSOA @ 2x I_C
 - low EMI
- Thin wafer technology combined with the XPT 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

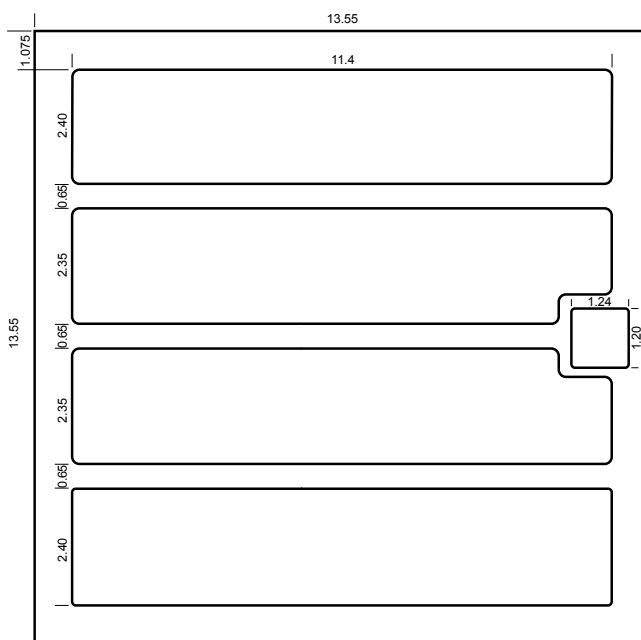
Parameters	Conditions	Orientation	Rating s	Unit
Area active			142	mm ²
Area total			183.60	mm ²
Wafer size Ø			150	mm
Thickness			190	µm
Material	SiFZ	Orientation	<100>	
Max. possible chips	per wafer			
Passivation	front side		SiN	
Metalization	top side		AlSi	
	backside		Al / Ti / Ni / Ag	
Recom. wire 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
Soldering temperature (5 min.)			max. tbd	°C
Virtual junction temperature T _{vj}			-40 ... 150	°C

Electrical Parameters

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
V_{CES}	Collector emitter voltage	$V_{GE} = 0\text{ V}$ $I_C = 1\text{ mA}$ $T_{VJ} = 25^\circ\text{C}$			1700	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	$V_{GE} = 15\text{ V}$ $I_C = 150\text{ A}$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		2 2.35	2.3	V
V_{TO}	Threshold voltage	$V_{GE} = 15\text{ V};$ $T_{VJ} = 150^\circ\text{C}$			1.1	V
r_T	(for power loss calculation)				11	m Ω
I_{CES}	Collector emitter leakage current	$V_{CE} = 1700\text{ V}$ $V_{GE} = 0\text{ V}$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		10 100	100	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		6.5	V
Q_{Gon}	Total gate charge	$I_C = 150\text{ A}$ $V_{CE} = 900\text{ V}$ $V_{GE} = 15\text{ V}$		430		nC
$t_{d(on)}$	Turn-on delay time			130		ns
t_r	Current rise time			90		ns
$t_{d(off)}$	Turn-off delay time	$V_G = 900\text{ V}$ $I_C = 150\text{ A}$		400		ns
t_f	Current fall time	$R_G = 10\ \Omega$ $V_{GE} = \pm 15\text{ V}$ $T_{VJ} = 125^\circ\text{C}$		150		ns
E_{on}	Turn-on energy per pulse	measured with: DWHP 150-17B		35		mJ
E_{off}	Turn-off energy per pulse			35		mJ
RBSOA	Reverse bias safe operation area	$V_{GE} = 15\text{ V}$ $R_G = 10\ \Omega$ $T_{VJ} = 125^\circ\text{C}$ $V_{CEK} = 1700\text{ V}$			300	A
SCSOA	Short circuit safe operation area					
t_{sc}	Short circuit duration	$V_{CE} = 1300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $T_{VJ} = 125^\circ\text{C}$			10	μs
I_{sc}	Short circuit current	$R_G = 10\ \Omega$ non-repetitive		450		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	n/a	n/a	n/a

F	G	H	I	J
[mm]	[mm]	[mm]	[mm]	[mm]
n/a	n/a	n/a	n/a	n/a