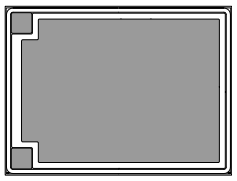
tentative

Trench XPT IGBT Chip

Type	V_{CE} [V]	I_C [A]	Chip Size [mm] x [mm]	Package	Ordering Code
IX150T06M-AG	650	300	14.2 10.6	sawn on foil ☐	tbd
				unsawn wafer ☐	tbd
				in waffle pack ☑	tbd



Features / Advantages:

- Easy paralleling due to the positive temperature coefficient of the on-state voltage
- Rugged Trench XPT design (Xtreme light Punch Through) results in:
  - short circuit rated for 10 µsec.
  - very low gate charge
  - square RBSOA @ 2x Ic
  - low EMI
  - Tvjm = 175°C
- Thin wafer technology combined with the XPT design results in a competitive low Vce(sat)
- Solderable/sinterable frontside metallization for highly reliable interconnection technology

Applications:

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

Mechanical Parameters

Parameters	Conditions		Ratings	Unit
Area active			130.02	mm²
Area total			150.52	mm²
Wafer size Ø			150	mm
Thickness			70	µm
Material	SiFZ	Orientation	<100>	
Max. possible chips	per wafer			
Passivation	front side		SiN	
Metallization	top side		Al / Ti / Ni / Ag	
	backside		Al / Ti / Ni / Ag	
Recom. wire bonds (Al)	Gate	Number / Ø	2 / 300	- / µm
Solder Pad (front side)	Emitter	Area	117.7	mm²
Reject Ink Dot Size	Ø		0.4-1.0	mm
Recom. Storage Environment	in orig. container, in dry nitrogen		< 6	month
	Storage Temperature (Tstg)		-40 ... 40	°C
Soldering/sintering temperature (5 min.)			max. 360	°C
Virtual junction temperature T_{VJ}			-40 ... 175	°C

Electrical Parameters

Symbol	Definition	Conditions			Ratings min.	typ.	max.	Unit
V_{CES}	*Collector emitter voltage*	V_{GE} = 0 V	I_C = 1 mA	T_{VJ} = 25°C			650	V
V_{GES}	*Maximum DC gate voltage*						±20	V
I_C	*Collector current* *(depending on thermal properties of assembly)*						300	A
$V_{CE\ sat}$	*Collector emitter saturation voltage*	V_{GE} = 15 V	I_C = 290 A	T_{VJ} = 25°C		1.5	1.7	V
				T_{VJ} = 150°C		1.75		V
V_{TO}	*Threshold voltage*	V_{GE} = 15 V;	T_{VJ} = 175 °C				0.8	V
r_T	*(for power loss calculation)*						4.1	m Ω
I_{CES}	*Collector emitter leakage current*	V_{CE} = 650 V	V_{GE} = 0 V	T_{VJ} = 25°C		10	100	µA
				T_{VJ} = 150°C		100		µA
I_{GES}	*Gate emitter leakage current*	V_{CE} = 0 V	V_{GE} = ±20 V				500	nA
$V_{GE(th)}$	*Gate emitter threshold voltage*	I_C = 4 mA	V_{CE} = V_{GE}	T_{VJ} = 25°C	5	5.8	6.5	V
Q_{Gon}	*Total gate charge*	I_C = 300 A	V_{CE} = 300 V	V_{GE} = 15 V		530		nC
C_{ies}	*Input capacitance*	V_{CE} = 25 V	V_{GE} = 0 V	T_{VJ} = 25°C		12.36		nF
C_{oes}	*Output capacitance*	f = 1 MHz				tbd		pF
C_{res}	*Reverse transfer capacitance*					tbd		pF
$t_{d(on)}$	*Turn-on delay time*					25		ns
t_r	*Current rise time*					45		ns
$t_{d(off)}$	*Turn-off delay time*	V_G = 300 V	I_C = 300 A			120		ns
t_f	*Current fall time*	R_G = 3.3 Ω	V_{GE} = ±15 V	T_{VJ} = 150°C		40		ns
E_{on}	*Turn-on energy per pulse*	measured with: DMHP 107-067M				7		mJ
E_{off}	*Turn-off energy per pulse*					12		mJ
RBSOA	*Reverse bias safe operation area*	V_{GE} = 15 V	R_G = 3.3 Ω	T_{VJ} = 150°C				
				V_{CE} = 650 V			600	A
SCSOA	*Short circuit safe operation area*							
t_{SC}	*Short circuit duration*	V_{CE} = 360 V	V_{GE} = ±15 V	T_{VJ} = 150°C			10	µs
I_{SC}	*Short circuit current*	R_G = 3.3 Ω	non-repetitive			1200		A

Data according to IEC 60747

Dimensions (1 mm = 0.0394")