



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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XPT IGBT phaseleg

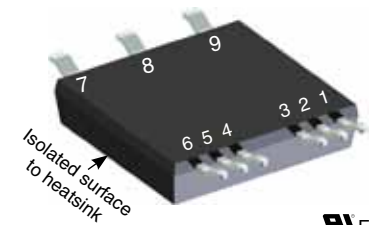
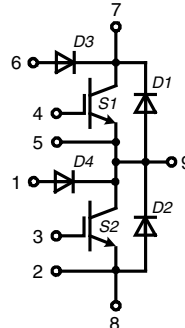
ISOPLUS™

Surface Mount Power Device

$$I_{C25} = 63 \text{ A}$$

$$V_{CES} = 1200 \text{ V}$$

$$V_{CE(sat) \text{ typ}} = 1.85 \text{ V}$$



E72873

IGBTs S1, S2

Symbol	Conditions	Maximum Ratings
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	1200 V
V_{GES}		± 20 V
I_{C25}	$T_C = 25^{\circ}\text{C}$	63 A
I_{C80}	$T_C = 80^{\circ}\text{C}$	45 A
I_{CM}	$V_{GE} = 15 \text{ V}; R_G = 27 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, clamped inductive load; $L = 100 \mu\text{H}$	105 A
V_{CEK}		V_{CES}
t_{SC} (SCSOA)	$V_{CE} = 900 \text{ V}; V_{GE} = \pm 15 \text{ V}; R_G = 27 \Omega; T_{VJ} = 125^{\circ}\text{C}$ none repetitive	10 μs
P_{tot}	$T_{VJ} = 25^{\circ}\text{C}$	230 W

Symbol	Conditions	Characteristic Values
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 ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)

		min.	typ.	max.		
$V_{CE(sat)}$	$I_C = 35 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		1.85 2.2	2.15	V V	
$V_{GE(th)}$	$I_C = 1.5 \text{ mA}; V_{GE} = V_{CE}$	5.4		6.5	V	
I_{CES}	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.25	0.15	mA mA	
I_{GES}	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			200	nA	
$t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{on} E_{off}	Inductive load; $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600 \text{ V}; I_C = 35 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 27 \Omega$		70 40 250 100 3.8 4.1		ns ns ns ns mJ mJ	
C_{ies}		$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$		tbd		pF
Q_{Gon}		$V_{CE} = 600 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 35 \text{ A}$		107		nC
R_{thJC}					0.55	K/W
R_{thJH}		with heatsink compound (IXYS test setup)		0.75	0.95	K/W

Features

- **XPT IGBT**
 - low saturation voltage
 - positive temperature coefficient for easy paralleling
 - fast switching
 - short tail current for optimized performance in resonant circuits
- **Sonic™ diode**
 - fast reverse recovery
 - low operating forward voltage
 - low leakage current
- **$V_{CE(sat)}$ detection diode**
 - integrated into package
 - very fast diode
- **Package**
 - isolated back surface
 - low coupling capacity between pins and heatsink
 - PCB space saving
 - enlarged creepage towards heatsink
 - application friendly pinout
 - low inductive current path
 - high reliability

Applications

- **Phaseleg**
 - buck-boost chopper
- **Full bridge**
 - power supplies
 - induction heating
 - four quadrant DC drives
 - controlled rectifier
- **Three phase bridge**
 - AC drives
 - controlled rectifier

Diodes D1, D2

Symbol	Conditions	Maximum Ratings	
I_{F25}	$T_C = 25^\circ\text{C}$	40	A
I_{F80}	$T_C = 80^\circ\text{C}$	27	A

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)					
V_F	$I_F = 35\text{ A}$	$T_{VJ} = 25^\circ\text{C}$	2.1	2.4	V
		$T_{VJ} = 125^\circ\text{C}$	2.1		V
I_{RM} t_{rr} E_{rec}	$I_F = 35\text{ A}; R_G = 27\ \Omega; T_{VJ} = 125^\circ\text{C}$ $V_R = 600\text{ V}; V_{GE} = -15\text{ V}$		30		A
			350		ns
			tbd		mJ
R_{thJC} R_{thJH}	per diode with heatsink compound (IXYS test setup)		1.2	1.5	K/W

Diodes D3, D4

Symbol	Conditions	Maximum Ratings	
V_R	$T_C = 25^\circ\text{C}$ to 150°C	1200	V

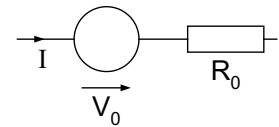
Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)					
V_F	$I_F = 1\text{ A}$	$T_{VJ} = 25^\circ\text{C}$	1.7	2.2	V
		$T_{VJ} = 125^\circ\text{C}$	1.5		V
I_R	$V_R = 1200\text{ V}$	$T_{VJ} = 25^\circ\text{C}$		2	μA
		$T_{VJ} = 125^\circ\text{C}$	30		μA
I_{RM} t_{rr}	$I_F = 1\text{ A}; di_F/dt = -100\text{ A}/\mu\text{s}; T_{VJ} = 25^\circ\text{C}$ $V_R = 100\text{ V}; V_{GE} = 0\text{ V}$		2.3		A
				40	

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-55...+150	$^\circ\text{C}$
T_{stg}		-55...+125	$^\circ\text{C}$
V_{ISOL}	$I_{ISOL} \leq 1\text{ mA}; 50/60\text{ Hz}$	2500	V~
F_C	mounting force	40 ... 130	N

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
C_P	coupling capacity between shorted pins and backside metal		90		pF
d_S, d_A	pin - pin	1.65			mm
d_S, d_A	pin - backside metal	4			mm
CTI		400			
Weight			8		g

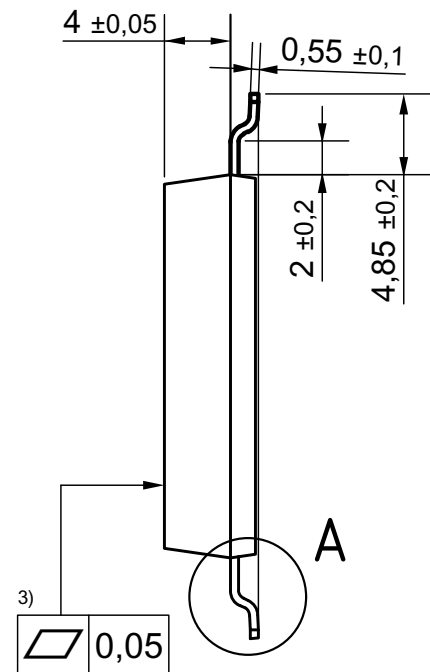
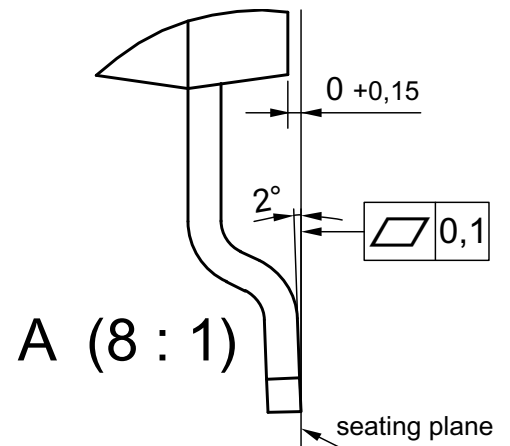
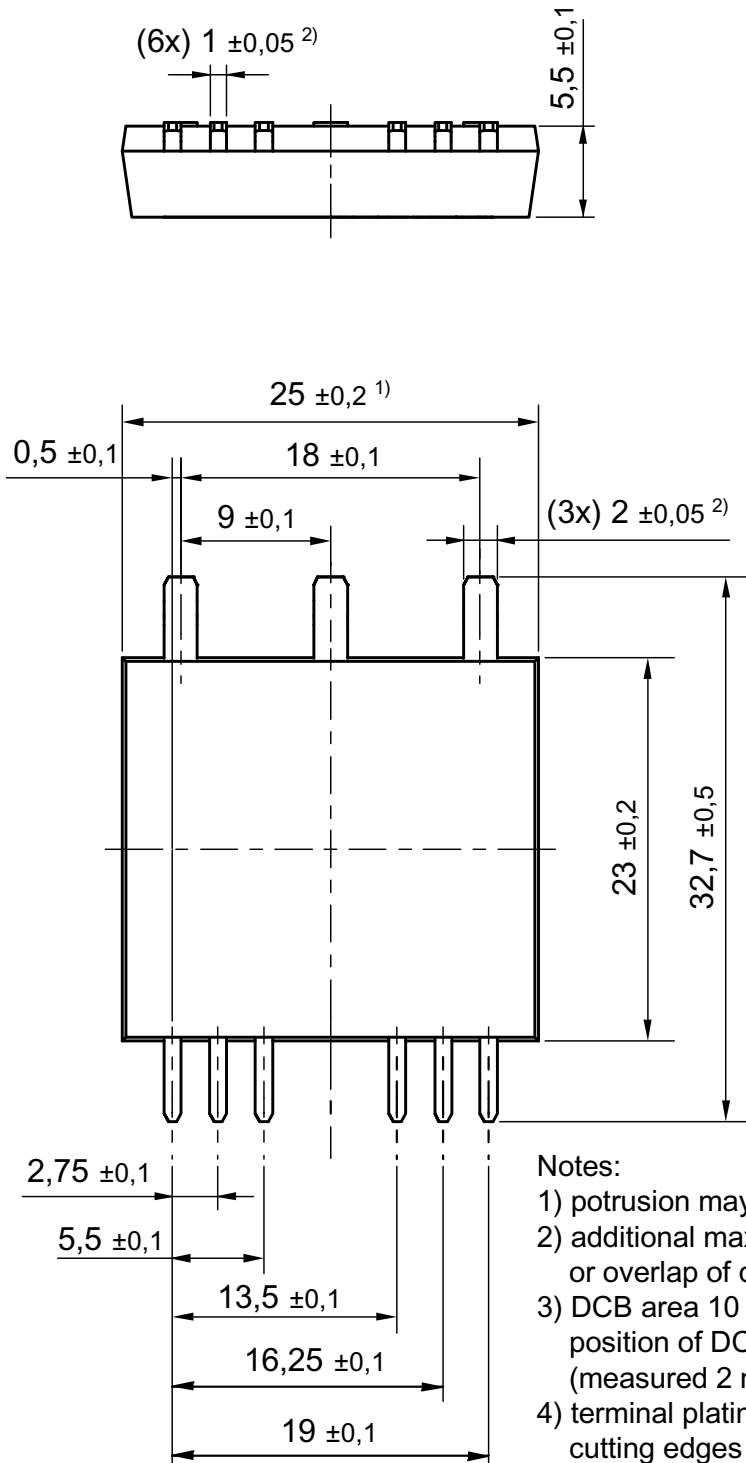
Ordering	Ordering Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	IXA 40PG1200DHGLB	IXA40PG1200DHGLB	Tape&Reel	200	tbd

Equivalent Circuits for Simulation
Conduction


IGBTs (typ. at $V_{GE} = 15\text{ V}; T_J = 125^\circ\text{C}$)
 S1, S2 $V_0 = 1.1\text{ V}; R_0 = 40\text{ m}\Omega$

Diodes (typ. at $T_J = 125^\circ\text{C}$)
 D1, D2 $V_0 = 1.3\text{ V}; R_0 = 28\text{ m}\Omega$

Dimensions in mm (1 mm = 0.0394")


Notes:

- 1) protrusion may add 0.2 mm max. on each side
- 2) additional max. 0.05 mm per side by punching misalignment or overlap of dam bar or bending compression
- 3) DCB area 10 to 50 μm convex; position of DCB area in relation to plastic rim: ±25 μm (measured 2 mm from Cu rim)
- 4) terminal plating: 0.2 - 1 μm Ni + 10 - 25 μm Sn (gal v.) cutting edges may be partially free of plating