

IGBT phaseleg

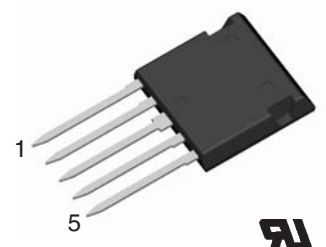
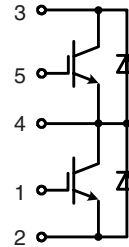
in ISOPLUS i4-PAC™

$$I_{C25} = 30 \text{ A}$$

$$V_{CES} = 600 \text{ V}$$

$$V_{CE(sat) \text{ typ.}} = 1.9 \text{ V}$$

Preliminary data



IGBTs			
Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	600	V
V_{GES}		± 20	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	30	A
I_{C90}	$T_C = 90^{\circ}\text{C}$	18	A
I_{CM} V_{CEK}	$V_{GE} = \pm 15 \text{ V}; R_G = 47 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$	40 V_{CES}	A
t_{SC} (SCSOA)	$V_{CE} = V_{CES}; V_{GE} = \pm 15 \text{ V}; R_G = 47 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	μs
P_{tot}	$T_C = 25^{\circ}\text{C}$	100	W

Symbol	Conditions	Characteristic Values		
		(T _{VJ} = 25°C, unless otherwise specified)		
		min.	typ.	max.
$V_{CE(sat)}$	$I_C = 20 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		1.9 2.2	2.4 V
$V_{GE(th)}$	$I_C = 0.5 \text{ mA}; V_{GE} = V_{CE}$	4.5		6.5 V
I_{CES}	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.6	0.6 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, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 300 \text{ V}; I_C = 20 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 47 \Omega$		50 55 300 30 0.92 0.68	ns ns ns ns mJ mJ
C_{ies}			1.1	nF
Q_{Gon}			65	nC
R_{thJC} R_{thJH}			2.5	1.25 K/W K/W

Features

- NPT IGBT
 - low saturation voltage
 - positive temperature coefficient for easy paralleling
 - fast switching
- HiPerFRED™ diode
 - optimized fast and soft reverse recovery
 - low operating forward voltage
 - low leakage current
- ISOPLUS i4-PAC™ package
 - isolated back surface
 - low coupling capacity between pins and heatsink
 - enlarged creepage towards heatsink
 - application friendly pinout
 - low inductive current path
 - high reliability
 - industry standard outline
 - UL registered E 72873

Applications

- single phaseleg
 - buck-boost chopper
- H bridge
 - power supplies
 - induction heating
 - four quadrant DC drives
 - controlled rectifier
- three phase bridge
 - AC drives
 - controlled rectifier

IXYS reserves the right to change limits, test conditions and dimensions.

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IXYS Semiconductor GmbH
Edisonstr. 15, D-68623 Lampertheim
Phone: +49-6206-503-0, Fax: +49-6206-503627

IXYS Corporation
3540 Bassett Street, Santa Clara CA 95054
Phone: (408) 982-0700, Fax: 408-496-0670

Diodes

Symbol	Conditions	Maximum Ratings	
I_{F25}	$T_C = 25^{\circ}\text{C}$	30	A
I_{F90}	$T_C = 90^{\circ}\text{C}$	15	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V_F	$I_F = 20 \text{ A}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		2.3 1.6	2.7 V
I_{RM} t_{rr}	$I_F = 15 \text{ A}; di_F/dt = -400 \text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$ $V_R = 300 \text{ V}; V_{GE} = 0 \text{ V}$		7 50	A ns
R_{thJC} R_{thJH}	(per diode) with heat transfer paste		4.6	2.3 K/W K/W

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-55...+150	°C
T_{stg}		-55...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500	V~
F_C	mounting force with clip	20...120	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
C_p	coupling capacity between shorted pins and mounting tab in the case		40	pF
d_s,d_A	pin - pin	1.7		mm
d_s,d_A	pin - backside metal	5.5		mm
Weight			9	g

Dimensions in mm (1 mm = 0.0394")

