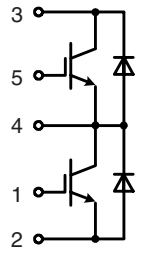
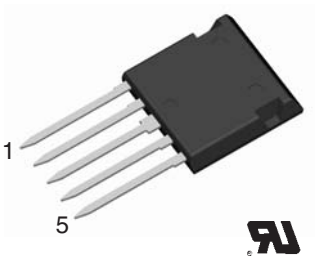
IGBT phaseleg

in ISOPLUS i4-PAC™

I_{C25} = 30 A
V_{CES} = 600 V
$V_{CE(sat)\,typ.}$ = 1.9 V

Preliminary data





IGBTs

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

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
$V_{CE(sat)}$	I_C = 20 A; V_{GE} = 15 V; T_{VJ} = 25°C		1.9	2.4	V
	T_{VJ} = 125°C		2.2		V
$V_{GE(th)}$	I_C = 0.5 mA; V_{GE} = V_{CE}	4.5		6.5	V
I_{CES}	V_{CE} = V_{CES}; V_{GE} = 0 V; T_{VJ} = 25°C			0.6	mA
	T_{VJ} = 125°C		0.6		mA
I_{GES}	V_{CE} = 0 V; V_{GE} = ± 20 V			200	nA
$t_{d(on)}$	Inductive load, T_{VJ} = 125°C		50		ns
t_r	V_{CE} = 300 V; I_C = 20 A		55		ns
$t_{d(off)}$	V_{GE} = ±15 V; R_G = 47 Ω		300		ns
t_f			30		ns
E_{on}			0.92		mJ
E_{off}			0.68		mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz		1.1		nF
Q_{Gon}	V_{CE} = 300 V; V_{GE} = 15 V; I_C = 20 A		65		nC
R_{thJC}				1.25	K/W
R_{thJH}	with heat transfer paste		2.5		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°C	30	A
I_{F90}	T_C = 90°C	15	A

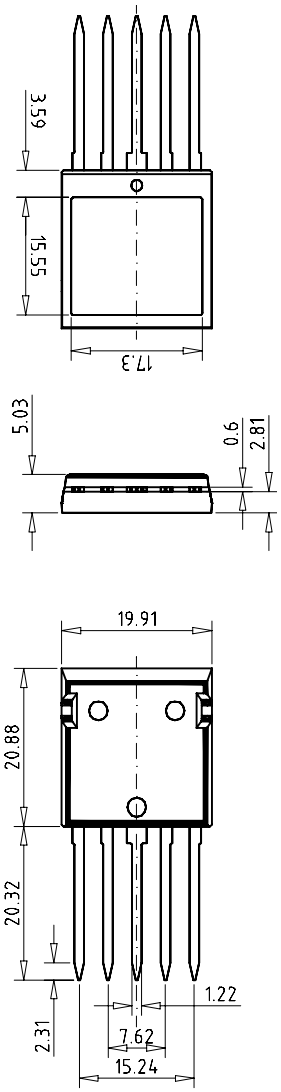
Symbol	Conditions	Characteristic Values min.	typ.	max.	
V_F	I_F = 20 A; T_{VJ} = 25°C		2.3	2.7	V
	T_{VJ} = 125°C		1.6		V
I_{RM}	I_F = 15 A; di_F/dt = -400 A/µs; T_{VJ} = 125°C		7		A
t_{rr}	V_R = 300 V; V_{GE} = 0 V		50		ns
R_{thJC}	(per diode)			2.3	K/W
R_{thJH}	with heat transfer paste		4.6		K/W

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-55...+150	°C
T_{stg}		-55...+125	°C
V_{ISOL}	$I_{ISOL} \leq$ 1 mA; 50/60 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")



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