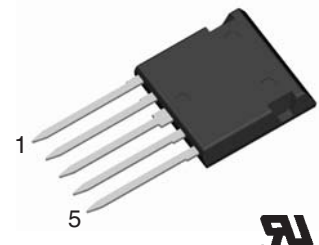
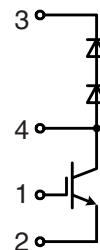


# Fast IGBT Chopper

in ISOPLUS i4-PAC™

$I_{C25} = 38 \text{ A}$   
 $V_{CES} = 600 \text{ V}$   
 $V_{CE(sat) \text{ typ.}} = 1.9 \text{ V}$

Preliminary data



IGBT			
Symbol	Conditions	Maximum Ratings	
$V_{CES}$	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	600	V
$V_{GES}$		$\pm 20$	V
$I_{C25}$	$T_C = 25^{\circ}\text{C}$	38	A
$I_{C90}$	$T_C = 90^{\circ}\text{C}$	24	A
$I_{CM}$ $V_{CEK}$	$V_{GE} = \pm 15 \text{ V}; R_G = 10 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$	110	A
		$V_{CES}$	
$t_{SC}$ (SCSOA)	$V_{CE} = V_{CES}; V_{GE} = \pm 15 \text{ V}; R_G = 10 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	$\mu\text{s}$
$P_{tot}$	$T_C = 25^{\circ}\text{C}$	125	W

### Features

- NPT IGBT technology
  - low switching losses for high frequency operation
  - no latch up
  - positive temperature coefficient for easy paralleling
- HiPerDyn™ FRED
  - consisting of series connected diodes
  - enhanced dynamic behaviour for high frequency operation
- 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

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{CE(sat)}$	$I_C = 25 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	1.9 2.2	2.4	V V
$V_{GE(th)}$	$I_C = 0.7 \text{ mA}; V_{GE} = V_{CE}$	3	5	V
$I_{CES}$	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	1	0.04	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, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 300 \text{ V}; I_C = 25 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 10 \Omega$	30		ns
		50		ns
		320		ns
		70		ns
		1.1		mJ
		0.6		mJ
$C_{ies}$	$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$	1.6		nF
$Q_{Gon}$	$V_{CE} = 600 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 15 \text{ A}$	140		nC
$R_{thJC}$ $R_{thJH}$	(with heat transfer paste)	2.0	1.0	K/W K/W

### Applications

- boost chopper for power factor correction
- supply of high frequency transformer
  - switched mode power supplies
  - welding converters

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

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**Diodes** (data for series connection)

Symbol	Conditions	Maximum Ratings	
$V_{RRM}$	$T_{VJ} = 25^{\circ}\text{C}$ to $150^{\circ}\text{C}$	600	V
$I_{F25}$	$T_C = 25^{\circ}\text{C}$	35	A
$I_{F90}$	$T_C = 90^{\circ}\text{C}$	20	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$V_F$	$I_F = 25\text{ A}$ ; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	2.8	3.7	V
$I_R$	$V_R = V_{RRM}$ ; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	0.1	0.1	mA
$I_{RM}$ $t_{rr}$	} $I_F = 15\text{ A}$ ; $di_F/dt = -400\text{ A}/\mu\text{s}$ ; $T_{VJ} = 125^{\circ}\text{C}$ $V_R = 300\text{ V}$ ; $V_{GE} = 0\text{ V}$	8		A
		50		ns
$R_{thJC}$ $R_{thJH}$	(per diode)	2.3		1.2 K/W K/W

**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 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
<b>Weight</b>		9		g

**Dimensions in mm (1 mm = 0.0394")**
