



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!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



High Voltage IGBT Phase-Leg

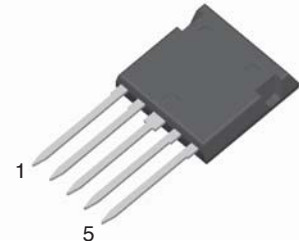
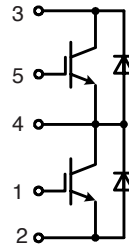
FII24N170AH1

$$I_{C25} = 18 \text{ A}$$

$$V_{CES} = 1700 \text{ V}$$

$$V_{CE(sat)} = 6.0 \text{ V}$$

ISOPLUS i4-PAC™ Package



IGBT

Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	18	A
I_{C90}	$T_C = 90^{\circ}\text{C}$	11	A
I_{CM}		75	A
RBSOA	$V_{GE} = +15 \text{ V}; R_G = 5 \Omega; T_{VJ} = 125^{\circ}\text{C}$ Clamped inductive load; $V_{clamp} = 1360\text{V}$	50	A
P_C	$T_C = 25^{\circ}\text{C}$	140	W

Features

- NPT³ IGBT
 - low saturation voltage
 - positive temperature coefficient for easy paralleling
 - fast switching
 - short tail current for optimized performance in resonant circuits
- SONIC-FRD™ diode
 - fast 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

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$ unless otherwise specified)		
		min.	typ.	max.
$V_{CE(sat)}$	$I_C = 16 \text{ A}; V_{GE} = 15 \text{ V}$ $T_{VJ} = 125^{\circ}\text{C}$		4.5 4.8	6.0 V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}; V_{GE} = V_{CE}$	3.0		5.0 V
I_{CES}	$V_{CE} = 0.8 V_{CES}; V_{GE} = 0 \text{ V}$ $T_{VJ} = 125^{\circ}\text{C}$			100 μA 1.5 mA
I_{GES}	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			± 100 nA
$t_{d(on)}$	Inductive load $V_{CE} = 600 \text{ V}; I_C = 24 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 39 \Omega$		48	ns
t_r			60	ns
$t_{d(off)}$			200	ns
t_f			45	ns
E_{off}			1.1	mJ
$t_{d(on)}$	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600 \text{ V}; I_C = 24 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 39 \Omega$		40	ns
t_r			60	ns
$t_{d(off)}$			220	ns
t_f			55	ns
E_{on}			2.5	mJ
E_{off}		1.7	mJ	

Note: All characteristic values and ratings refer to a single IGBT or diode except V_{CES} , I_{CES} and C_{oes} .

IGBT

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
g_{fs}	$I_C = 24\text{ A}$, $V_{CE} = 10\text{ V}$, Note 2	10	16	S
Q_g	$I_C = 16\text{ A}$, $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		105	nC
Q_{ge}			17	nC
Q_{gc}			30	nC
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		2400	pF
C_{oes}			150	pF
C_{res}			30	pF
R_{thJC} R_{thCK}		0.6	0.9	K/W K/W

Diode

Symbol	Conditions	Maximum Ratings	
I_{F25}	$T_C = 25^\circ\text{C}$	24	A
I_{F90}	$T_C = 90^\circ\text{C}$	14	A

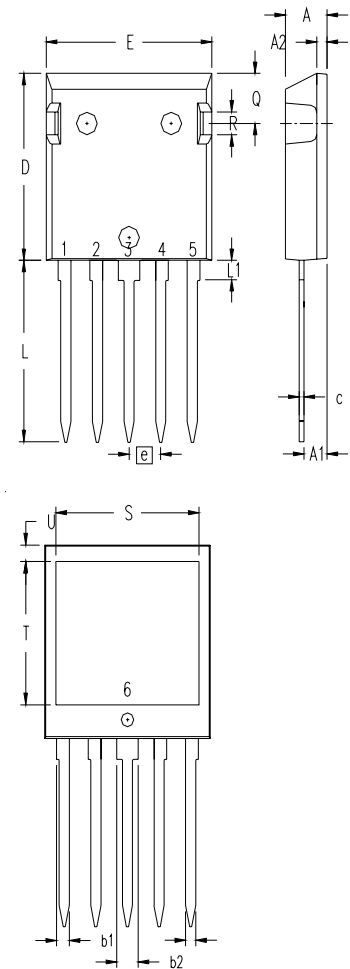
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V_F	$I_F = 20\text{ A}$ $T_{VJ} = 125^\circ\text{C}$		2.5	2.95
			2.5	V
I_{RM}	$I_F = 20\text{ A}$; $di_F/dt = -450\text{ A}/\mu\text{s}$; $T_{VJ} = 125^\circ\text{C}$		23	A
t_{rr}	$V_R = 1200\text{ V}$; $V_{GE} = 0\text{ V}$		230	ns
R_{thJC}		1.6		K/W
R_{thCS}		0.6		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
Weight			9	g

Outline Drawing



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.085	1.17	2.16
b	.045	.055	1.14	1.40
b1	.058	.068	1.47	1.73
b2	.100	.110	2.54	2.79
C	.020	.029	0.51	0.74
D	.819	.840	20.80	21.34
E	.770	.799	19.56	20.29
e	.150 BSC		3.81 BSC	
L	.780	.840	19.81	21.34
L1	.083	.102	2.11	2.59
Q	.210	.244	5.33	6.20
R	.100	.180	2.54	4.57
S	.660	.690	16.76	17.53
T	.590	.620	14.99	15.75
U	.065	.080	1.65	2.03

IXYS MOSFETs and IGBTs are covered by 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065 B1 6,683,344 6,727,585
 one or more of the following U.S. patents: 4,850,072 5,017,508 5,063,307 5,381,025 6,259,123 B1 6,534,343 6,710,405B2 6,759,692
 4,881,106 5,034,796 5,187,117 5,486,715 6,306,728 B1 6,583,505 6,710,463

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

© 2005 IXYS All rights reserved