



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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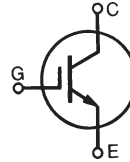
HiPerFAST™ IGBT IXGR 120N60C2

ISOPLUS247™

Lightspeed 2™ Series

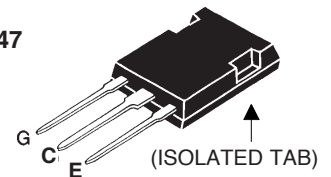
(Electrically Isolated Back Surface)

$$\begin{aligned} V_{CES} &= 600 \text{ V} \\ I_{C110} &= 60 \text{ A} \\ V_{CE(sat)} &= 2.7 \text{ V} \\ t_{fi(typ)} &= 45 \text{ ns} \end{aligned}$$



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	600	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	600	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$ (limited by leads)	75	A
I_{C110}	$T_C = 110^\circ\text{C}$	60	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	500	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 4.7 \Omega$ Clamped inductive load @ $V_{CE} \leq 600 \text{ V}$	$I_{CM} = 200$	A
P_c	$T_C = 25^\circ\text{C}$	300	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS, $t = 1 \text{ minute}$ $I_{ISOL} < 1 \text{ mA}$ $t = 20 \text{ seconds}$	2500 3000	V~ V~
F_c	Clamping force	20..120/4.5..25	N/ib
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
Weight		5	g

**ISOPLUS247
(IXGR)**



G = Gate C = Collector
E = Emitter

Features

- DCB Isolated mounting tab
- Meets TO-247AD package Outline
- High current handling capability
- Latest generation HDMOS™ process
- MOS Gate turn-on
- drive simplicity

Applications

- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- AC motor speed control
- DC servo and robot drives
- DC choppers

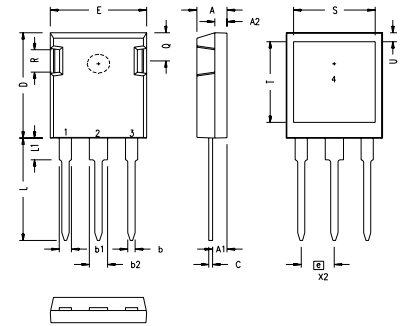
Advantages

- Easy assembly
- High power density
- Very fast switching speeds for high frequency applications

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 1 \text{ mA}, V_{GE} = 0 \text{ V}$	600		V
$V_{GE(th)}$	$I_C = 500 \mu\text{A}, V_{CE} = V_{GE}$	3.0		V
I_{CES}	$V_{CE} = V_{CES}$ $V_{GE} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$			100 2 μA mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			± 200 nA
$V_{CE(sat)}$	$I_C = I_T, V_{GE} = 15 \text{ V}$ Note 1 $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	2.3 2.0		2.7 V V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$I_C = 60\text{ A}; V_{CE} = 10\text{ V}$, Note 1	50	75	S
C_{ies}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		11	nF
C_{oes}			680	pF
C_{res}			190	pF
Q_g	$I_C = I_T, V_{GE} = 15\text{ V}, V_{CE} = 0.5 V_{CES}$		350	nC
Q_{ge}			72	nC
Q_{gc}			131	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = 80\text{ A}, V_{GE} = 15\text{ V}$ $V_{CE} = 400\text{ V}, R_G = R_{off} = 1.0\ \Omega$		18	ns
t_{ri}			25	ns
$t_{d(off)}$			95	150 ns
t_{fi}			45	ns
E_{off}			0.9	1.6 mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = 80\text{ A}, V_{GE} = 15\text{ V}$ $V_{CE} = 400\text{ V}, R_G = R_{off} = 1.0\ \Omega$		18	ns
t_{ri}			25	ns
E_{on}			1.6	mJ
$t_{d(off)}$			130	ns
t_{fi}			85	ns
E_{off}			1.5	mJ
R_{thJC}				0.42 K/W
R_{thJC}			0.15	K/W

ISOPLUS 247 Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b1	.075	.084	1.91	2.13
b2	.115	.123	2.92	3.12
C	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
E	.620	.635	15.75	16.13
e	.215 BSC		5.45 BSC	
L	.780	.800	19.81	20.32
L1	.150	.170	3.81	4.32
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83
S	.520	.540	13.21	13.72
T	.620	.640	15.75	16.26
U	.065	.080	1.65	2.03

- 1 - GATE
2 - DRAIN (COLLECTOR)
3 - SOURCE (EMITTER)
4 - NO CONNECTION

NOTE: This drawing will meet all dimensions requirement of JEDEC outline 10-247AD except screw hole.

Note 1: Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

2: Test current $I_T = 100\text{ A}$.

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

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

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
4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	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	6,771,478 B2