



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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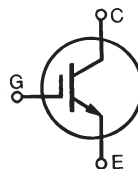


HiPerFAST™ IGBT

C2-Class High Speed IGBTs

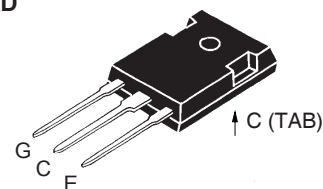
IXGH 60N60C2
IXGT 60N60C2

$$\begin{aligned} V_{CES} &= 600 \text{ V} \\ I_{C25} &= 75 \text{ A} \\ V_{CE(sat)} &= 2.5 \text{ V} \\ t_{fi typ} &= 35 \text{ ns} \end{aligned}$$

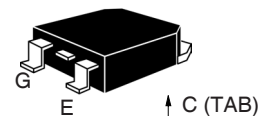


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	600	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	600	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$ (limited by leads)	75	A
I_{C110}	$T_C = 110^\circ\text{C}$	60	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	300	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 10 \Omega$ Clamped inductive load @ $\leq 600 \text{ V}$	$I_{CM} = 100$	A
P_C	$T_C = 25^\circ\text{C}$	480	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
M_d	Mounting torque (TO-247)	1.13/10Nm/lb.in.	
Weight		TO-247 AD	6 g
		TO-268	4 g

TO-247 AD
(IXGH)



TO-268
(IXGT)



G = Gate,
E = Emitter,

C = Collector,
TAB = Collector

Features

- Very high frequency IGBT
- Square RBSOA
- High current handling capability
- MOS Gate turn-on
- drive simplicity

Applications

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

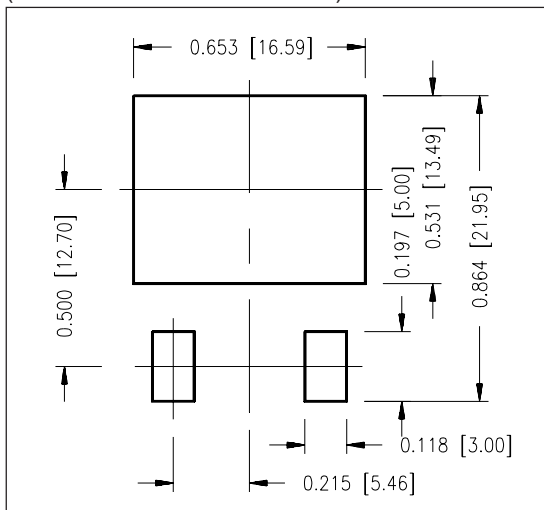
Advantages

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

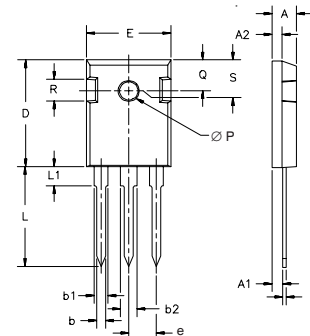
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)			
		min.	typ.	max.	
$V_{GE(th)}$	$I_C = 250 \mu\text{A}$, $V_{CE} = V_{GE}$	3.0		5.0	V
I_{CES}	$V_{CE} = V_{CES}$ $V_{GE} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$		50	μA
				1	mA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			± 100	nA
$V_{CE(sat)}$	$I_C = 50 \text{ A}$, $V_{GE} = 15 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	2.1	2.5	V
			1.8		V

Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	I _C = 50 A; V _{CE} = 10 V, Pulse test, t ≤ 300 μs, duty cycle ≤ 2 %	40	58	S
C_{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		3900	pF
C_{oes}			280	pF
C_{res}			97	pF
Q_g	I _C = 50 A, V _{GE} = 15 V, V _{CE} = 0.5 V _{CES}		146	nC
Q_{ge}			28	nC
Q_{gc}			50	nC
t_{d(on)}	Inductive load, T _J = 25°C I _C = 50 A, V _{GE} = 15 V V _{CE} = 400 V, R _G = R _{off} = 2 Ω		18	ns
t_{ri}			25	ns
t_{d(off)}			95	ns
t_{fi}			35	ns
E_{off}			0.48	0.8 mJ
t_{d(on)}	Inductive load, T _J = 125°C I _C = 50 A, V _{GE} = 15 V V _{CE} = 400 V, R _G = R _{off} = 2 Ω		18	ns
t_{ri}			25	ns
E_{on}			0.45	mJ
t_{d(off)}			130	ns
t_{fi}			80	ns
E_{off}			1.2	mJ
R_{thJC}				0.26 KW
R_{thCK}	(TO-247)		0.25	KW

Min. Recommended Footprint (Dimensions in inches and mm)

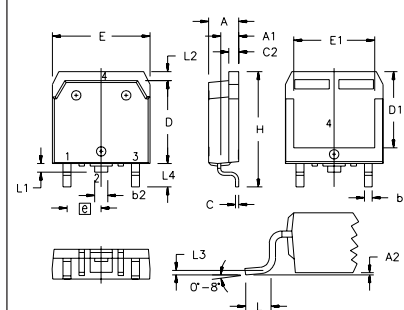


TO-247 AD Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L ₁		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	.242	BSC

TO-268 Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A ₁	.106	.114	2.70	2.90
A ₂	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b ₂	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C ₂	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D ₁	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E ₁	.524	.535	13.30	13.60
e	.215	BSC	5.45	BSC
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L ₁	.047	.055	1.20	1.40
L ₂	.039	.045	1.00	1.15
L ₃	.010	BSC	0.25	BSC
L ₄	.150	.161	3.80	4.10

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 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 6,259,123B1 6,306,728B1
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343

Fig. 1. Output Characteristics
@ 25 Deg. C

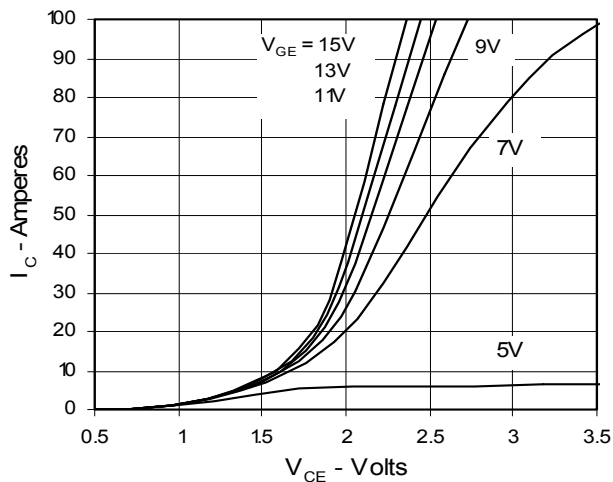


Fig. 2. Extended Output Characteristics
@ 25 Deg. C

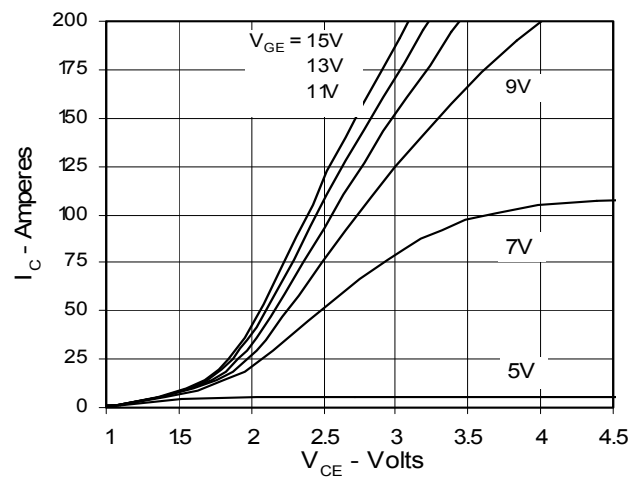


Fig. 3. Output Characteristics
@ 125 Deg. C

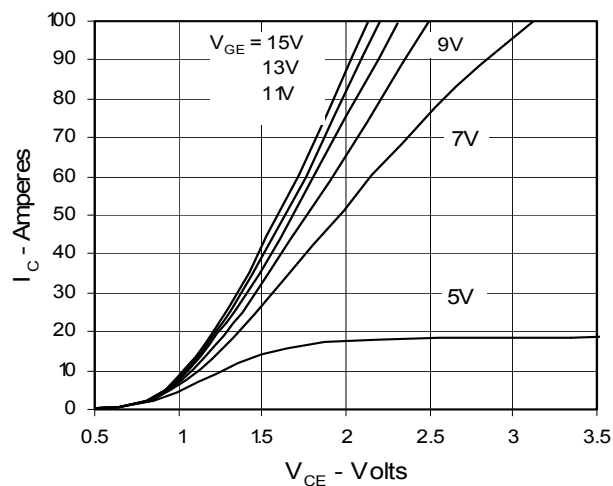


Fig. 4. Temperature Dependence of $V_{CE(sat)}$

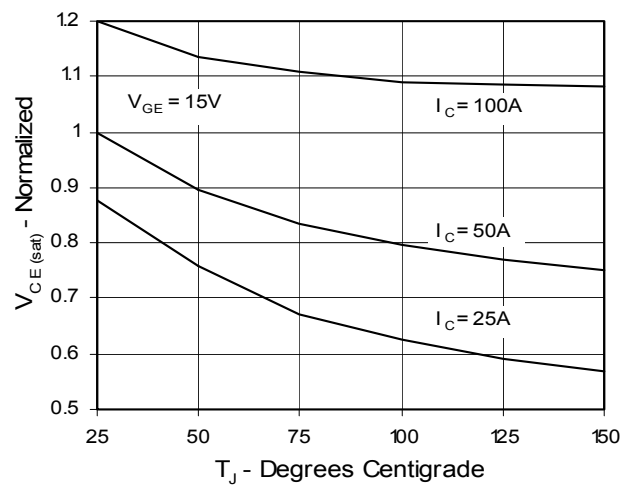


Fig. 5. Collector-to-Emitter Voltage
vs. Gate-to-Emitter voltage

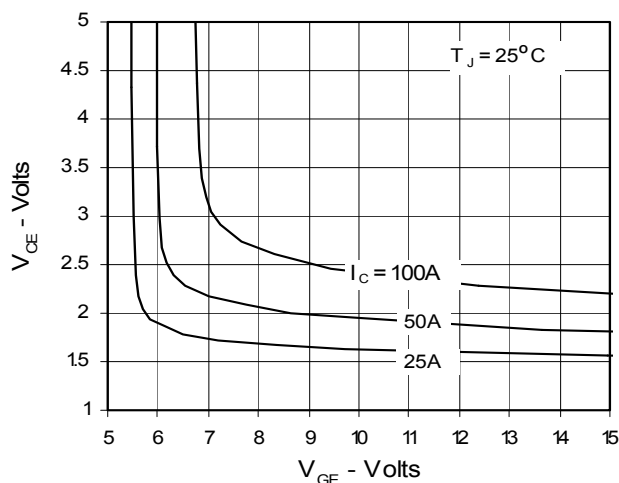


Fig. 6. Input Admittance

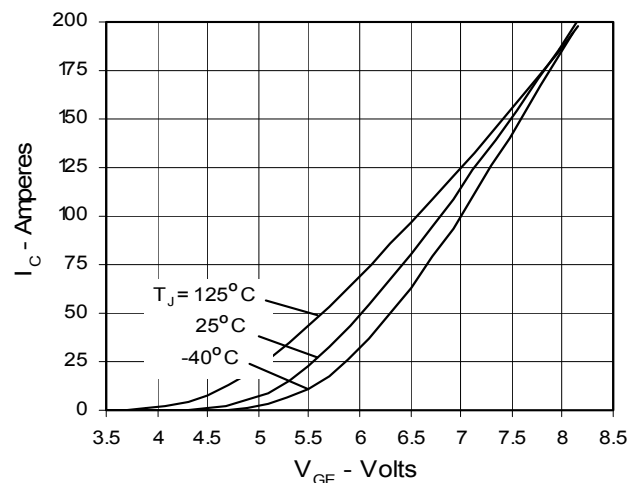


Fig. 7. Transconductance

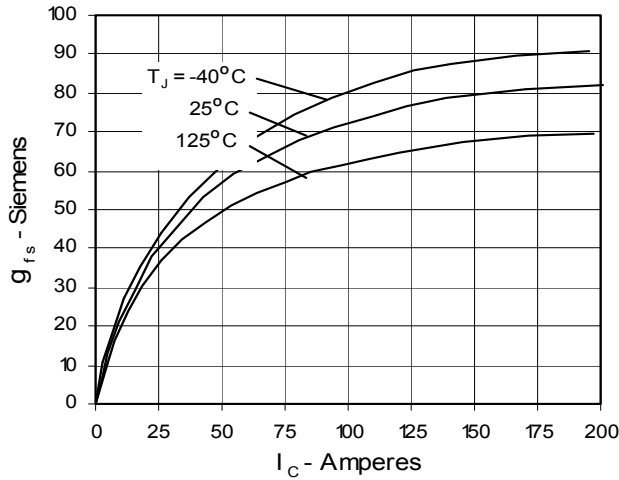


Fig. 8. Dependence of E_{off} on R_G

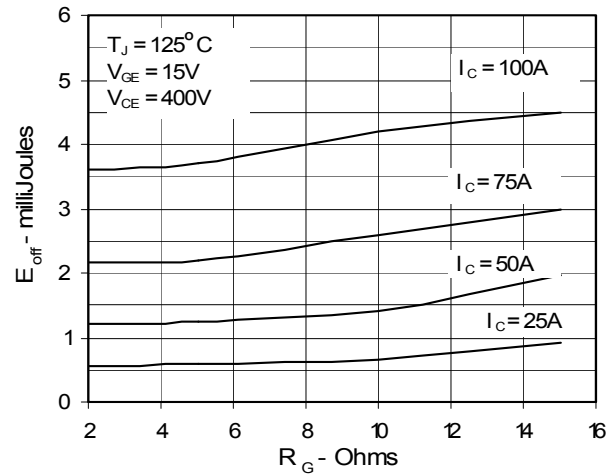


Fig. 9. Dependence of E_{off} on I_C

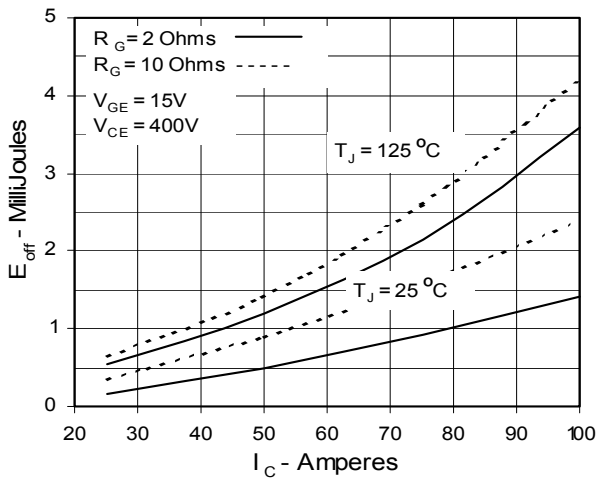


Fig. 10. Dependence of E_{off} on Temperature

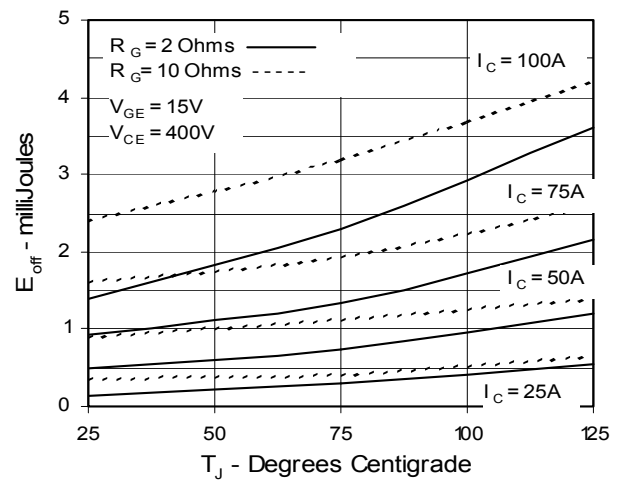


Fig. 11. Gate Charge

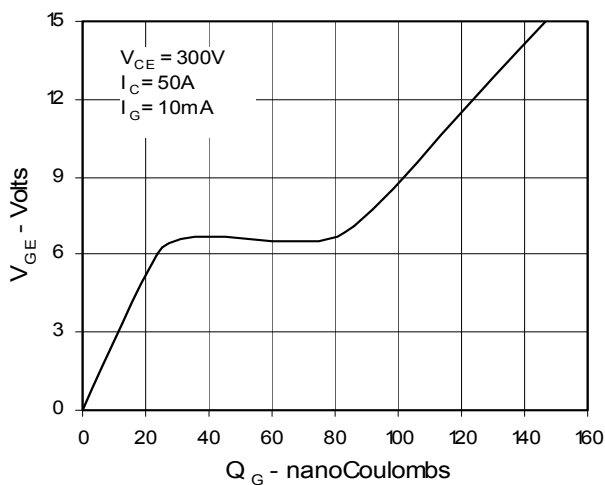
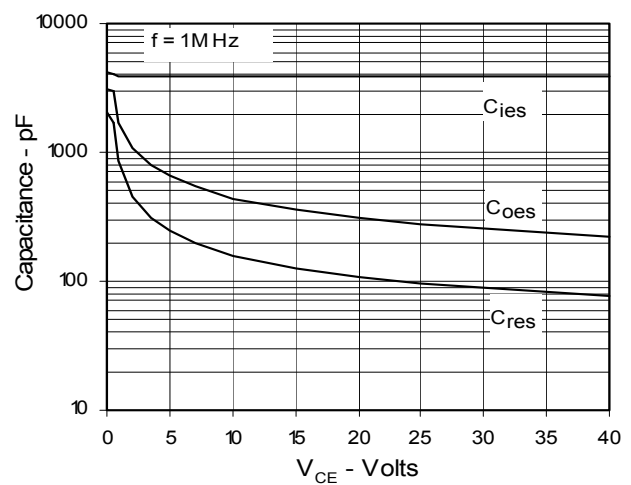


Fig. 12. Capacitance



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Fig. 13. Maximum Transient Thermal Resistance

