

High Voltage IGBT

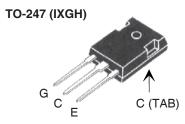
IXGH24N170 IXGT24N170



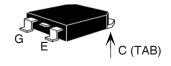
Symbol	Test Conditions	Maximum	n Ratings
V _{CES}	T _c = 25°C to 150°C	1700	V
V _{CGR}	$T_J = 25^{\circ}C$ to 150°C, $R_{GE} = 1M\Omega$	1700	V
V _{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I _{C25}	$T_{c} = 25^{\circ}C$	50	А
I _{C90}	$T_{c} = 90^{\circ}C$	24	Α
I _{CM}	$T_c = 25$ °C, 1ms	150	Α
SSOA	$V_{\rm GE} = 15 \text{V}, T_{\rm VJ} = 125 ^{\circ}\text{C}, R_{\rm G} = 5 \Omega$	I _{CM} = 50	A
(RBSOA)	Clamped inductive load	@ 0.8 • V _{CES}	
t _{sc}	$V_{GE} = 15V, T_{VJ} = 125^{\circ}C, V_{CE} = 1000V$	10	μs
(SCSOA)	$R_{\rm G} = 5\Omega$, non repetitive		
P _c	T _C = 25°C	250	W
T,		-55 +150	°C
T _{JM}		150	°C
T _{stg}		-55 +150	°C
T _L T _{SOLD}	1.6mm (0.062 in.) from case for 10s Plastic body for 10 seconds	300 260	°C
M _d	Mounting torque (TO-247)	1.13/10	Nm/lb.in.
Weight	TO-247 TO-268	6 4	g g

•	Test Conditions unless otherwise spec	ified)	Cha Min.	racteris Typ.	tic Valu ∣ Max.	ies
BV _{CES}	$I_{_{C}}=250\mu A,\ V_{_{GE}}=0V$		1700			V
V _{GE(th)}	$I_{\text{C}} = 250 \mu\text{A}, \ V_{\text{CE}} = V_{\text{GE}}$		3.0		5.0	V
I _{CES}	$V_{CE} = 0.8 \bullet V_{CES}$ $V_{GE} = 0V$	T _J = 125°C			50 500	μA μA
GES	$V_{CE} = 0V, V_{GE} = \pm 20V$				±100	nA
V _{CE(sat)}	$I_{\rm C} = I_{\rm C90}, V_{\rm GE} = 15V, Not$	e 1 T _J = 125°C		2.5 3.0	3.3	V

 $V_{CES} = 1700V$ $I_{C25} = 50A$ $V_{CE(sat)} \le 3.3V$ $t_{fi(typ)} = 250ns$



TO-268 (IXGT)



G = Gate C = CollectorE = Emitter TAB = Collector

Features

- International standard packages JEDEC TO-268 and JEDEC TO-247 AD
- High current handling capability
- MOS Gate turn-on
 - drive simplicity
- Rugged NPT structure
- Molding epoxies meet UL 94 V-0 flammability classification

Applications

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

Advantages

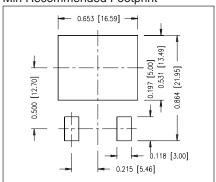
- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw, (isolated mounting screw hole)



Symbol	Test Conditions C unless otherwise specified)	Chara Min.	acteristic	Values Max.	5
				IVIAA.	
g _{fs}	$I_{\rm C} = I_{\rm C90}, V_{\rm CE} = 10V, \text{ Note 1}$	18	25		S
C(ON)	$V_{CE} = 10V$, $V_{GE} = 10V$		100		Α
C _{ies})		2400		pF
\mathbf{C}_{oes}	$V_{CE} = 25V, V_{GE} = 0V, f = 1MHz$		120		pF
\mathbf{C}_{res}	J		33		pF
$\overline{\mathbf{Q}_{g}}$)		106		nC
\mathbf{Q}_{ge}	$I_{\rm C} = I_{\rm C90}, V_{\rm GE} = 15 \rm V, V_{\rm CE} = 0.5 \bullet \rm V_{\rm CES}$		18		nC
Q _{gc}	J		32		nC
t _{d(on)}	\ Inductive load, T _J = 25°C		42		ns
t _{ri}	$I_{\rm C} = I_{\rm C25}, V_{\rm GE} = 15V$		39		ns
t _{d(off)}	$\begin{cases} V_{CE} = 0.8 \bullet V_{CES}, R_{G} = R_{off} = 5\Omega \end{cases}$		200	400	ns
t _{fi}	Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} ,		250	500	ns
E _{off}	higher T _J or increased R _G		8	12	mJ
t _{d(on)}	Inductive load, T _J = 125°C		50		ns
t _{ri}	$I_{\rm C} = I_{\rm C25}, V_{\rm GE} = 15V$		55		ns
E _{on}	$V_{CE} = 0.8 \cdot V_{CES}, R_{G} = R_{off} = 5\Omega$		2.0		mJ
$\mathbf{t}_{d(off)}$	Remarks: Switching times may		200		ns
t _{fi}	increase for V_{CE} (Clamp) > 0.8 • V_{CES} ,		360		ns
E _{off}	higher T _J or increased R _G		12		mJ
R _{thJC}				0.50	°C/W
R _{thCS}	(TO-247)		0.25		°C/W

Note 1: Pulse test, $t \le 300\mu s$, duty cycle, $d \le 2\%$.

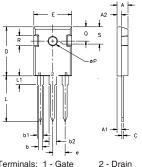
Min Recommended Footprint



ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

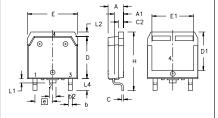
TO-247 AD Outline

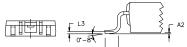


Terminals: 1 - Gate

Dim.	Milli	meter	Inc	hes
	Min.	Max.	Min.	Max.
Α	4.7	5.3	.185	.209
A,	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b,	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
С	.4	.8	.016	.031
D	20.80	21.46	.819	.845
Е	15.75	16.26	.610	.640
е	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		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

TO-268 Outline





Terminals: 1 - Gate 2 - Drain

MYZ	INCH	IES .	MILLIMETERS		
	MIN	MAX	MIN	MAX	
Α	.193	.201	4.90	5.10	
A1	.106	.114	2.70	2.90	
A2	.001	.010	0.02	0.25	
b	.045	.057	1.15	1.45	
b2	.075	.083	1.90	2.10	
С	.016	.026	0.40	0.65	
C2	.057	.063	1.45	1.60	
D	.543	.551	13.80	14.00	
D1	.488	.500	12.40	12.70	
E	.624	.632	15.85	16.05	
E1	.524	.535	13.30	13.60	
е	.215 BSC		5.45 BSC		
Н	.736	.752	18.70	19.10	
L	.094	.106	2.40	2.70	
L1	.047	.055	1.20	1.40	
L2	.039	.045	1.00	1.15	
L3	.010	BSC	0.25 BSC		
L4	.150	.161	3.80	4.10	

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