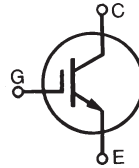


High Voltage IGBT

IXGH 24N170A
IXGT 24N170A

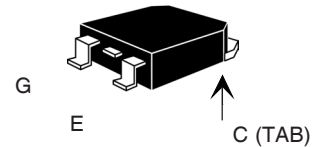
$V_{CES} = 1700 \text{ V}$
 $I_{C25} = 24 \text{ A}$
 $V_{CE(sat)} = 6.0 \text{ V}$
 $t_{fi(typ)} = 45 \text{ ns}$

Preliminary Data Sheet

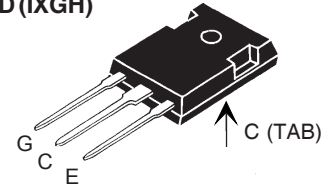


Symbol	Test Conditions	Maximum Ratings
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1700 V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1700 V
V_{GES}	Continuous	$\pm 20 \text{ V}$
V_{GEM}	Transient	$\pm 30 \text{ V}$
I_{C25}	$T_C = 25^\circ\text{C}$	24 A
I_{C90}	$T_C = 90^\circ\text{C}$	16 A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	75 A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 5\Omega$ Clamped inductive load	$I_{CM} = 50 \text{ A}$ @ $0.8 V_{CES}$
t_{SC}	$T_J = 125^\circ\text{C}, V_{CE} = 1200 \text{ V}; V_{GE} = 15 \text{ V}, R_G = 22\Omega$	10 μs
P_C	$T_C = 25^\circ\text{C}$	250 W
T_J		-55 ... +150 $^\circ\text{C}$
T_{JM}		150 $^\circ\text{C}$
T_{stg}		-55 ... +150 $^\circ\text{C}$
M_d	Mounting torque (M3) (TO-247)	1.13/10Nm/lb.in.
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300 $^\circ\text{C}$
Weight	TO-247	6 g
	TO-268	4 g

TO-268 (IXGT)



TO-247 AD (IXGH)



G = Gate, C = Collector,
E = 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

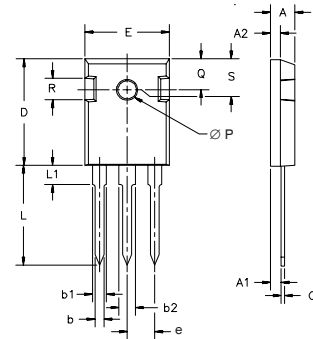
- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw, (isolated mounting screw hole)

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	1700		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	3.0		V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$		$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	50 μA 1000 μA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	4.5 4.8	6.0 V V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$I_C = I_{C25}, V_{CE} = 10\text{ V}$ Note 2	10	16	S
C_{ies}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		2400	pF
C_{oes}			120	pF
C_{res}			30	pF
Q_g	$I_C = I_{C90}, V_{GE} = 15\text{ V}, V_{CE} = 0.5 V_{CES}$		105	nC
Q_{ge}			17	nC
Q_{gc}			30	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$	Note 3	38	ns
t_{ri}	$I_C = I_{C25}, V_{GE} = 15\text{ V}$		57	ns
$t_{d(off)}$	$R_G = 5\ \Omega, V_{CE} = 0.5 V_{CES}$		200	350 ns
t_{fi}			45	100 ns
E_{off}			1.1	2.2 mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$	Note 3	38	ns
t_{ri}	$I_C = I_{C25}, V_{GE} = 15\text{ V}$		60	ns
E_{on}	$R_G = 5\ \Omega, V_{CE} = 0.5 V_{CES}$		2.5	mJ
$t_{d(off)}$			220	ns
t_{fi}			55	ns
E_{off}		1.7	mJ	
R_{thJC}				0.5 K/W
R_{thCK}	(TO-247)	0.25		K/W

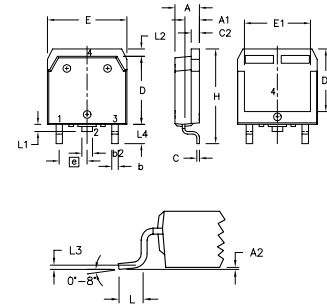
- Notes: 1. Device must be heatsunk for high temperature leakage current measurements to avoid thermal runaway.
2. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$
3. Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G .

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
L1		4.50		.177
∅P	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



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.9	5.1	.193	.201
A ₁	2.7	2.9	.106	.114
A ₂	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b ₂	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E ₁	13.3	13.6	.524	.535
e	5.45	BSC	.215	BSC
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L1	1.20	1.40	.047	.055
L2	1.00	1.15	.039	.045
L3		0.25 BSC		.010 BSC
L4	3.80	4.10	.150	.161

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	