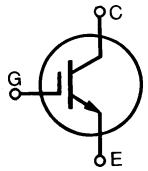
IXYS

HiPerFAST™ IGBT IXGH 24N60A

V_{CES} = 600 V
I_{C25} = 48 A
$V_{CE(sat)}$ = 2.7 V
t_{fi} = 275 ns



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	600	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 1 MΩ	600	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C	48	A
I_{C90}	T_C = 90°C	24	A
I_{CM}	T_C = 25°C, 1 ms	96	A
SSOA (RBSOA)	V_{GE}= 15 V, T_{VJ} = 125°C, R_G = 22 Ω Clamped inductive load, L = 100 µH	I_{CM} = 48 @ 0.8 V_{CES}	A
P_C	T_C = 25°C	150	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
M_d	Mounting torque (M3)	1.13/10	Nm/lb.in.
Weight		6	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	°C

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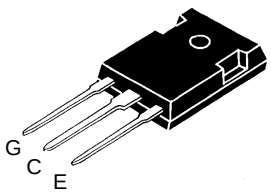


G = Gate, C = Collector,
E = Emitter, TAB = Collector

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
BV_{CES}	I_C = 250 µA, V_{GE} = 0 V		600			V
$V_{GE(th)}$	I_C = 250 µA, V_{CE} = V_{GE}		2.5		5	V
I_{CES}	V_{CE} = 0.8 • V_{CES} V_{GE} = 0 V	T_J = 25°C T_J = 125°C			200 1	µA mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V				±100	nA
$V_{CE(sat)}$	I_C = I_{C90}, V_{GE} = 15 V				2.7	V

Features

- International standard package JEDEC TO-247 AD
- High frequency IGBT
- 2nd generation HDMOS™ process
- High current handling capability
- MOS Gate turn-on
  - drive simplicity

Applications

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

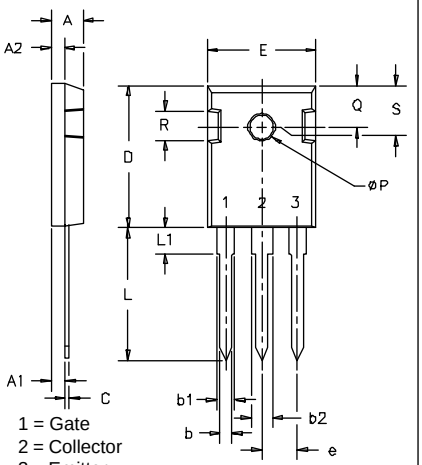
Advantages

- Easy to mount with 1 screw (isolated mounting screw hole)
- Switching speed for high frequency applications
- High power density

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
g_{fs}	$I_C = I_{C90}$; V_{CE} = 10 V, Pulse test, t ≤ 300 µs, duty cycle ≤ 2 %	9	13		S
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		1500		pF
C_{oes}			135		pF
C_{res}			40		pF
Q_g	$I_C = I_{C90}$, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}		90	120	nC
Q_{ge}			11	15	nC
Q_{gc}			30	40	nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**		25		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V, L = 100 µH,		15		ns
E_{on}	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 10 Ω		0.6		mJ
$t_{d(off)}$	Remarks: Switching times may increase		150	200	ns
t_{fi}	for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or		110	270	ns
E_{off}	increased R_G		1.5		mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		25		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V, L = 100 µH		15		ns
E_{on}	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 10 Ω		0.8		mJ
$t_{d(off)}$	Remarks: Switching times may increase		250		ns
t_{fi}	for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or		400		ns
E_{off}	increased R_G		2.3		mJ
R_{thJC}				0.83	K/W
R_{thCK}			0.25		K/W

IXGH 24N60A characteristic curves are located on the IXGH 24N60AU1 data sheet.

TO-247 AD Outline



1 = Gate
2 = Collector
3 = Emitter
Tab = Collector

SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.185	.209	4.7	5.3
A_1	.087	.102	2.2	2.54
A_2	.059	.098	2.2	2.6
b	.040	.055	1.0	1.4
b_1	.065	.084	1.65	2.13
b_2	.113	.123	2.87	3.12
C	.016	.031	.4	.8
D	.819	.845	20.80	21.46
E	.610	.640	15.75	16.26
e	.215 BSC		5.45 BSC	
L	.780	.800	19.81	20.32
L1		.177		4.50
øP	.140	.144	3.55	3.65
Q	.212	.244	5.4	6.2
R	.170	.216	4.32	5.49
S	.242 BSC		6.15 BSC	