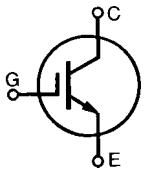
IXYS

HiPerFAST™ IGBT Lightspeed™ Series

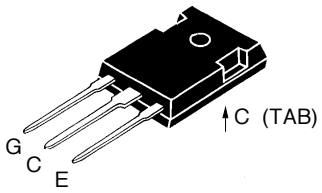
IXGH 12N60C

V_{CES} = 600 V
I_{C25} = 24 A
$V_{CE(sat)}$ = 2.7 V
$t_{fi(typ)}$ = 55 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	24	A
I_{C90}	T_C = 90°C	12	A
I_{CM}	T_C = 25°C, 1 ms	48	A
SSOA (RBSOA)	V_{GE}= 15 V, T_{VJ} = 125°C, R_G = 33 Ω Clamped inductive load, L = 300 μH	I_{CM} = 24 @ 0.8 V_{CES}	A
P_C	T_C = 25°C	100	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
M_d	Mounting torque with screw M3 Mounting torque with screw M3.5	0.45/4 0.55/5	Nm/lb.in. Nm/lb.in.
Weight		6	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	°C

TO-247



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_{GE} = V_{GE}		2.5		5.0	V
I_{CES}	V_{CE} = 0.8 V_{CES} V_{GE} = 0 V	T_J = 25°C T_J = 125°C			200 1.5	μA mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V				±100	nA
$V_{CE(sat)}$	I_C = I_{CE90}, V_{GE} = 15 V			2.1	2.7	V

Features

- Very high frequency IGBT
- New generation HDMOS™ process
- International standard package JEDEC TO-247
- High peak current handling capability

Applications

- PFC circuit
- AC motor speed control
- DC servo and robot drives
- Switch-mode and resonant-mode power supplies
- High power audio amplifiers

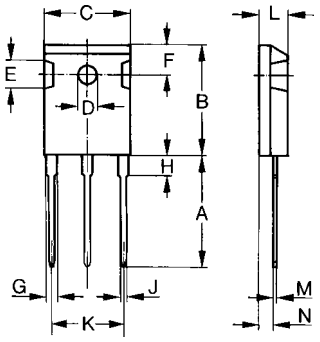
Advantages

- Fast switching speed
- High power density

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Symbol	Test Conditions (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 %	5	11		S
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		860		pF
C_{oes}			64		pF
C_{res}			15		pF
Q_g	$I_C = I_{C90}$, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}		32		nC
Q_{ge}			10		nC
Q_{gc}			10		nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**		20		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V, L = 300 µH		20		ns
$t_{d(off)}$	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 18 Ω		60		ns
t_{fi}	Remarks: Switching times may increase for V_{CE} (Clamp) > 0.8 V_{CES}, higher T_J or increased R_G		55		ns
E_{off}			0.09		mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		20		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V, L = 300 µH		20		ns
E_{on}	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 18 Ω		0.15		mJ
$t_{d(off)}$	Remarks: Switching times may increase for		85	180	ns
t_{fi}	V_{CE} (Clamp) > 0.8 V_{CES}, higher T_J or increased R_G		85	180	ns
E_{off}			0.27	0.60	mJ
R_{thJC}				1.25	K/W
R_{thCK}			0.25		K/W

TO-247 AD (IXGH) Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

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 4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025