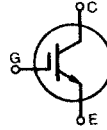


HiPerFAST™ IGBT

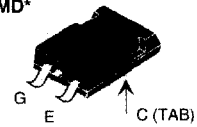
IXGH 32N60B IXGH 32N60BS

V_{CES} = 600 V
 I_{C25} = 60 A
 $V_{CE(sat)}$ = 2.5 V
 t_{fi} = 80 ns

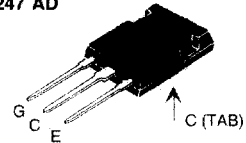


Symbol	Test Conditions	Maximum Ratings
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	600 V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1\text{ M}\Omega$	600 V
V_{GES}	Continuous	± 20 V
V_{GEM}	Transient	± 30 V
I_{C25}	$T_C = 25^\circ\text{C}$	60 A
I_{C90}	$T_C = 90^\circ\text{C}$	32 A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	120 A
SSOA (RBSOA)	$V_{GE} = 15\text{ V}$, $T_{VI} = 125^\circ\text{C}$, $R_G = 33\ \Omega$ Clamped inductive load, $L = 100\ \mu\text{H}$	$I_{CM} = 64$ @ $0.8 V_{CES}$ A
P_C	$T_C = 25^\circ\text{C}$	200 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 (M3)	1.13/10 Nm/lb.in.
Weight	TO-247 AD	6 g
	TO-247 SMD	4 g

TO-247 SMD*



TO-247 AD



G = Gate, C = Collector,
 E = Emitter, TAB = Collector
 *Add suffix letter "S" to order surface mountable part

Features

- International standard packages JEDEC TO-247 SMD surface mountable and JEDEC TO-247 AD
- High current handling capability
- Newest generation HDMOS™ process
- MOS Gate turn-on
 - drive simplicity

Applications

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

Advantages

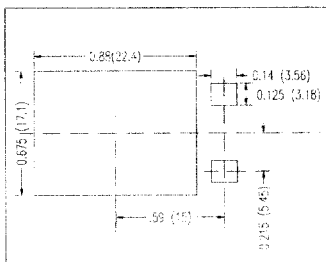
- High power density
- Very fast switching speeds for high frequency applications

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

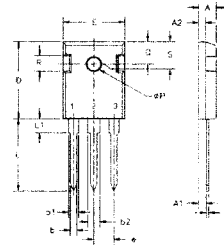
Symbol	Test Conditions	Characteristic Values		
		$(T_J = 25^\circ\text{C}, \text{ unless otherwise specified})$		
		min.	typ.	max.
g_{fs}	$I_C = I_{C90}, V_{CE} = 10 V,$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $\leq 2\%$	15	20	S
C_{ies}	$V_{CE} = 25 V, V_{GE} = 0 V, f = 1 \text{ MHz}$	2500		pF
C_{oes}		230		pF
C_{res}		70		pF
Q_g	$I_C = I_{C90}, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}$	125	150	nC
Q_{ge}		23	35	nC
Q_{gc}		50	75	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15 V, L = 100 \mu\text{H},$ $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7 \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G	25		ns
t_{ri}		30		ns
$t_{d(off)}$		100	200	ns
t_{fi}		80	150	ns
E_{off}		0.8	1.6	mJ
$t_{d(on)}$		Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15 V, L = 100 \mu\text{H}$ $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7 \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G	25	
t_{ri}	35			ns
E_{on}	0.3			mJ
$t_{d(off)}$	120			ns
t_{fi}	120			ns
E_{off}	1.4			mJ
R_{thJC}				0.62 K/W
R_{thCK}				0.25 K/W

IXGH 32N60B/..S characteristic curves are located in the IXGH 32N60BU1/..S data sheet.

Min. Recommended Footprint (Dimensions in inches and mm)

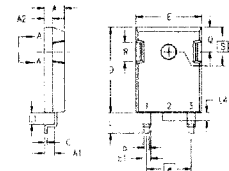


TO-247 AD Outline



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
QP	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-247 SMD Outline



- 1 - Gate 3 - Source (Emitter)
2 - Drain (collector) 4 - Drain (collector)

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A ₁	2.29	2.54	.090	.100
A ₂	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b ₁	1.19	2.13	.075	.084
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45	BSC	.215	BSC
L	4.90	5.10	.193	.201
L ₁	2.70	2.90	.106	.114
L ₂	2.10	2.30	.083	.091
L ₃	0.00	0.10	.000	.004
L ₄	1.90	2.10	.075	.083
QP	3.55	3.65	.140	.144
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190
S	6.15	BSC	.242	BSC