

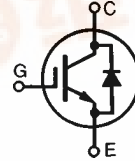


Preliminary Data Sheet

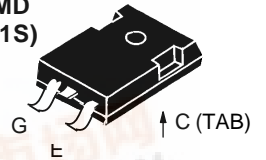
HiPerFAST™ IGBT with Diode Combi Pack

IXGH32N50BU1 IXGH32N50BU1S

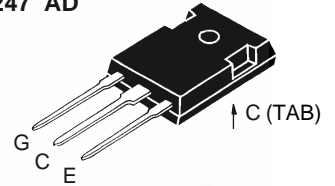
$V_{CES} = 500\text{ V}$
 $I_{C25} = 60\text{ A}$
 $V_{CE(sat)} = 2.0\text{ V}$
 $t_{fi} = 80\text{ ns}$



TO-247 SMD
(32N50BU1S)



TO-247 AD



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

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	500	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1\text{ M}\Omega$	500	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)	$V_{GE} = 15\text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 33\ \Omega$ 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 and Tab temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
M_d	Mounting torque, TO-247 AD	1.13/10	Nm/lb.in.
Weight	TO-247 SMD	4	g
	TO-247 AD	6	g

Features

- * International standard packages
- * JEDEC TO-247 SMD surface mountable and JEDEC TO-247 AD
- * High frequency IGBT and antiparallel FRED in one package
- * High current handling capability
- * Newest generation HDMOS™ process
- * MOS Gate turn-on - drive simplicity

Applications

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

Advantages

- * Space savings (two devices in one package)
- * High power density
- * Very fast switching speeds for high frequency applications

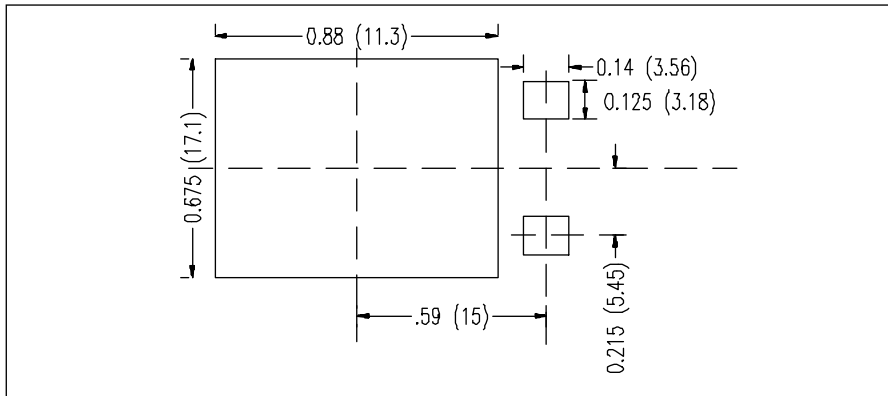
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 750\ \mu\text{A}$, $V_{GE} = 0\text{ V}$	500		V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}$, $V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$, $V_{GE} = 0\text{ V}$			500 μA 8 mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$			2.0 V



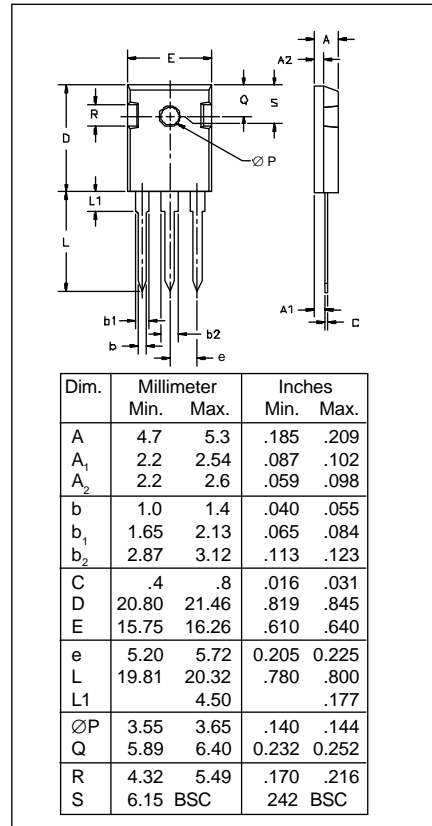
Symbol	Test Conditions	Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	I _C = I _{C90} ; V _{CE} = 10 V, Pulse test, t ≤ 300 μs, duty cycle ≤ 2 %	15	20	S	
C _{ies} C _{oes} C _{res}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		2500	pF	
				270	pF
				70	pF
Q _g Q _{ge} Q _{gc}	I _C = I _{C90} , V _{GE} = 15 V, V _{CE} = 0.5 V _{CES}		125	150 nC	
				23	35 nC
				50	75 nC
t _{d(on)} t _{ri} t _{d(off)} t _{fi} E _{off}	Inductive load, T_J = 25°C I _C = I _{C90} ; V _{GE} = 15 V, L = 100 μH, V _{CE} = 0.8 V _{CES} ; R _G = R _{off} = 4.7 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _J or increased R _G		25	ns	
			30	ns	
			100	200 ns	
			80	150 ns	
			0.7	1.5 mJ	
t _{d(on)} t _{ri} E _{on} t _{d(off)} t _{fi} E _{off}	Inductive load, T_J = 125°C I _C = I _{C90} ; V _{GE} = 15 V, L = 100 μH V _{CE} = 0.8 V _{CES} ; R _G = R _{off} = 4.7 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _J or increased R _G		25	ns	
			35	ns	
			1	mJ	
			120	ns	
			120	ns	
			1.2	mJ	
R _{thJC} R _{thCK}				0.62 K/W K/W	
			0.25		

Symbol	Test Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
V_F	I _F = I _{C90} ; V _{GE} = 0 V, Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			1.6 V
I _{RM} t _{rr}	I _F = I _{C90} ; V _{GE} = 0 V, -di _F /dt = 240 A/μs V _R = 360 V I _F = 1 A; -di/dt = 100 A/μs; V _R = 30 V		10	15 A
		T _J = 125°C T _J = 25°C		150
R _{thJC}				1 K/W

Min. Recommended Footprint (Dimensions in inches and (mm))



TO-247 AD Outline



TO-247 SMD Outline

