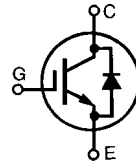


Preliminary data

HiPerFAST™ IGBT with Diode Combi Pack

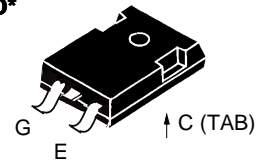
IXGH22N50BU1 IXGH22N50BU1S

$$\begin{aligned} V_{CES} &= 500 \text{ V} \\ I_{C(25)} &= 44 \text{ A} \\ V_{CE(sat)typ} &= 2.1 \text{ V} \\ t_{fi(typ)} &= 55 \text{ ns} \end{aligned}$$

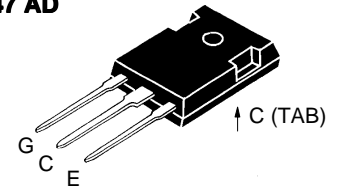


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	500	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	500	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	44	A
I_{C90}	$T_C = 90^\circ\text{C}$	22	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	88	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 22 \Omega$ Clamped inductive load, $L = 100 \mu\text{H}$	$I_{CM} = 44$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	150	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

TO-247 SMD*



TO-247 AD



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

*Add suffix letter "S" for surface mountable package

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
- HiPerFAST™ HDMOS™ process
- MOS Gate turn-on
- drive simplicity

Applications

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

Advantages

- Space savings (two devices in one package)
- High power density
- Suitable for surface mounting
- Very low switching losses for high frequency applications
- Easy to mount with 1 screw, TO-247 (insulated mounting screw hole)

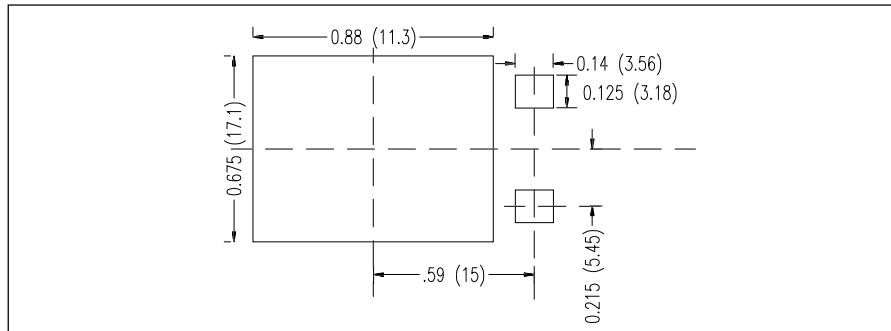
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	500		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$			200 μA 8 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$	2.1	2.5	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 %	9	16	S
C_{ies} C_{oes} C_{res}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		1450	pF
			120	pF
			37	pF
Q_{gc} Q_{ge} Q_{gs}	I _C = I _{C90'} , V _{GE} = 15 V, V _{CE} = 0.5 V _{CES}		90	nC
			11	nC
			30	nC
t_{d(on)} t_{ri} E_{on} 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} = 10 Ω Note 1		15	ns
			30	ns
			0.15	mJ
			100	150 ns
			55	110 ns
			0.3	0.5 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} = 10 Ω Note 1		15	ns
			30	ns
			0.15	mJ
			140	ns
			100	ns
			0.6	mJ
R_{thJC} R_{thCK}				0.83 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 T _J = 125°C I _F = 1 A; -di/dt = 100 A/μs; V _R = 30 V T _J = 25°C		10	15 A
			150	ns
			35	50 ns
R_{thJC}				1 K/W

Note 1: Switching times may increase for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or increased R_G

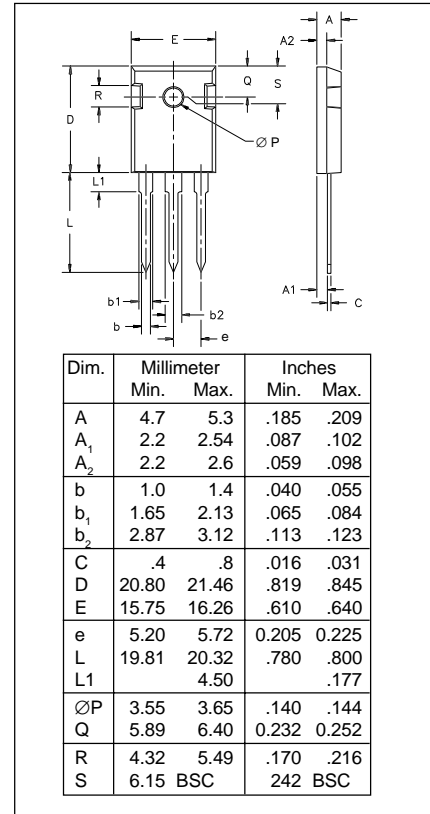
Min. Recommended Footprint (Dimensions in inches and mm)



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

TO-247 AD Outline



TO-247 SMD Outline

