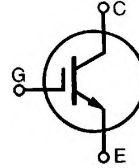


Preliminary data

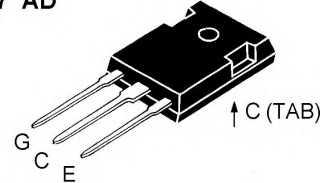
HiPerFAST™ IGBT

IXGH 50N50B
IXGH 50N60B

V_{CES}	I_{C25}	$V_{CE(sat)}$	t_{fi}
500 V	75 A	2.3 V	100 ns
600 V	75 A	2.5 V	120 ns



TO-247 AD



G = Gate C = Collector
E = Emitter Tab = Collector

Symbol	Test Conditions	Maximum Ratings		
		50N50	50N60	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	500	600	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1\text{ M}\Omega$	500	600	V
V_{GES}	Continuous		± 20	V
V_{GEM}	Transient		± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$		75	A
I_{C90}	$T_C = 90^\circ\text{C}$		50	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms		200	A
SSOA (RBSOA)	$V_{GE} = 15\text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 10\ \Omega$ Clamped inductive load, $L = 30\ \mu\text{H}$		$I_{CM} = 100$ @ $0.8 V_{CES}$	A
P_c	$T_C = 25^\circ\text{C}$		250	W
T_J		-55 ... +150		$^\circ\text{C}$
T_{JM}			150	$^\circ\text{C}$
T_{stg}		-55 ... +150		$^\circ\text{C}$
M_d	Mounting torque, TO-247 AD		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	$^\circ\text{C}$

Features

- International standard package JEDEC TO-247 AD
- High frequency IGBT
- 3rd 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

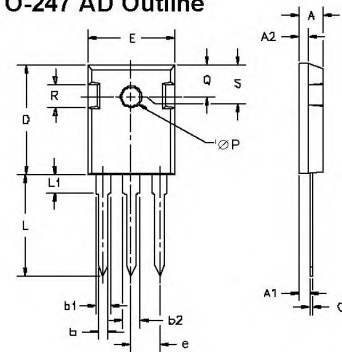
Advantages

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

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250\ \mu\text{A}$, $V_{GE} = 0\text{ V}$	50N50 50N60	500 600	V V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}$, $V_{CE} = V_{GE}$		2.5	5.0 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0\text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		200 μA 1 mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$	50N50B 50N60B		2.3 V 2.5 V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$I_C = I_{C90}$; $V_{CE} = 10\text{ V}$. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$	25	35	S
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		3800	pF
C_{oes}			300	pF
C_{res}			85	pF
Q_g	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		200	250 nC
Q_{ge}			35	50 nC
Q_{gc}			70	100 nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $L = 100\ \mu\text{H}$, $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 2.7\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$		50	ns
t_{ri}			50	ns
$t_{d(off)}$			110	ns
t_{fl}		50N50	100	ns
E_{off}		50N60	120	ns
	V_{CES} , higher T_J or increased R_G	50N50	1.5	mJ
		50N60	1.8	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $L = 100\ \mu\text{H}$, $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 2.7\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G		50	ns
t_{ri}			60	ns
E_{on}			3	mJ
$t_{d(off)}$		50N50	200	300 ns
t_{fl}		50N60	150	275 ns
E_{off}	50N50	2.6	3.5 mJ	
		50N60	3	4.2 mJ
R_{thJC}			0.25	0.50 K/W
R_{thCK}				K/W

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
∅P	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

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