

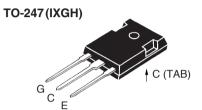
HiPerFAST™ IGBT IXGH 32N90B2 B2-Class High Speed IGBTs IXGT 32N90B2

 V_{CES} = 900 V I_{C25} = 64 A $V_{CE(sat)}$ = 2.7 V t_{fityp} = 150 ns



Symbol	Test Conditions	Ma	Maximum Ratings		
V _{CES}	$T_{J} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$		900	V	
V _{CGR}	$T_{_J} = 25^{\circ}C$ to $150^{\circ}C$; $R_{_{GE}} = 1$ M Ω		900	V	
V _{GES}	Continuous		±20	V	
V _{GEM}	Transient		±30	V	
I _{C25}	T _C = 25°C (limited by leads)		64	A	
I _{C110}	$T_{c} = 110^{\circ}C$		32	Α	
I _{CM}	$T_{\rm C} = 25^{\circ} \rm C, \ 1 \ ms$		200	Α	
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^{\circ}\text{C}, R_{G} = 10 \Omega$ Clamped inductive load @ \leq 600V	I	_{CM} = 64	A	
P_c	$T_{c} = 25^{\circ}C$		300	W	
T _J		-55	+150	°C	
T _{JM}			150	°C	
T _{stg}		-55	+150	°C	
Maximum le	ead temperature for soldering 062 in.) from case for 10 s		300	°C	
Plastic body			260	°C	
M_d	Mounting torque (TO-247)		1.13/10Nm	ı/lb.in.	
Weight		TO-247	6	g	
		TO-268	4	<u>g</u>	

Symbol	Test Conditions	Characteristic Values $(T_J = 25^{\circ}C, \text{ unless otherwise specified})$ min. typ. max.			
V _{GE(th)}	$I_{_{C}}=250~\mu\text{A},~V_{_{CE}}=V_{_{GE}}$	3.0		5.0	V
I _{CES}	$V_{CE} = V_{CES}$ $V_{GE} = 0 V$	$T_J = 25^{\circ}C$ $T_J = 150^{\circ}C$		50 750	μ Α μ Α
I _{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			±100	nA
V _{CE(sat)}	$I_{\rm C} = I_{\rm C110}, V_{\rm GE} = 15 \text{ V}$	T _J = 125°C	2.2 2.1	2.7	V V



TO-268 (IXGT)



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

Features

- High frequency IGBT
- High current handling capability
- MOS Gate turn-on
 - drive simplicity

Applications

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

Advantages

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

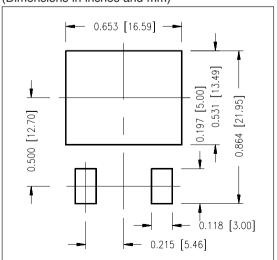


Symbol	Test Conditions Cha $(T_{_J} = 25^{\circ}\text{C, unless of min.})$		stic Values se specified) max.
g _{fs}	$\begin{array}{l} I_{_{C}} = I_{_{\text{C110}}}A;V_{_{\text{CE}}} \!=\! 10V, \\ \text{Pulse test, } t \leq 300~\mu\text{s, duty cycle} \leq 2~\% \end{array} \hspace{1cm} 18$	28	S
C _{ies} C _{oes} C _{res}	$ V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz} $	1790 121 49	pF pF pF
\mathbf{Q}_{ge} \mathbf{Q}_{ge}		89 15 34	nC nC nC
$\mathbf{t}_{d(on)}$ \mathbf{t}_{ri} $\mathbf{t}_{d(off)}$ \mathbf{t}_{fi} \mathbf{E}_{off}	Inductive load, $T_J = 25^{\circ}C$ $I_C = I_{C110}, V_{GE} = 15 \text{ V}$ $V_{CE} = 720 \text{ V}, R_G = R_{off} = 5 \Omega$	20 22 260 150 2.6	ns ns 400 ns ns 4.5 mJ
$\begin{aligned} & \mathbf{t}_{d(on)} \\ & \mathbf{t}_{ri} \\ & \mathbf{E}_{on} \\ & \mathbf{t}_{d(off)} \\ & \mathbf{t}_{fi} \\ & \mathbf{E}_{off} \end{aligned}$	Inductive load, $T_J = 125^{\circ}C$ $I_C = I_{C110} A, V_{GE} = 15 V$ $V_{CE} = 720 V, R_G = R_{off} = 5 \Omega$ Note 1	20 22 0.5 3.8 360 330 5.75	ns ns mJ mJ ns ns
R _{thJC}	(TO-247)	0.25	0.42 K/W K/W

Note 1: $E_{\rm on}$ measured with a DSEP 30-12A ultrafast diode clamp.

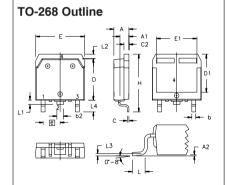
Min. Recommended Footprint

(Dimensions in inches and mm)



TO-247 AD Outline

Dim.	Millimeter		Inches		
	Min.	Max.	Min.	Max.	
Α	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,	1.65	2.13	.065	.084	
b ₂	2.87	3.12	.113	.123	
С	.4	.8	.016	.031	
D	20.80	21.46	.819	.845	
E	15.75	16.26	.610	.640	
е	5.20	5.72	0.205	0.225	
L	19.81	20.32	.780	.800	
L1		4.50		.177	
ØP	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	
1					



MYZ	INCHES		MILLIMETERS		
21M	MIN	MAX	MIN	MAX	
Α	.193	.201	4.90	5.10	
A1	.106	.114	2.70	2.90	
A2	.001	.010	0.02	0.25	
Ь	.045	.057	1.15	1.45	
b2	.075	.083	1.90	2.10	
С	.016	.026	0.40	0.65	
C2	.057	.063	1.45	1.60	
D	.543	.551	13.80	14.00	
D1	.488	.500	12.40	12.70	
Е	.624	.632	15.85	16.05	
E1	.524	.535	13.30	13.60	
е	.215 BSC		5.45 BSC		
Н	.736	.752	18.70	19.10	
L	.094	.106	2.40	2.70	
L1	.047	.055	1.20	1.40	
L2	.039	.045	1.00	1.15	
L3	.010	.010 BSC		0.25 BSC	
L4	.150	.161	3.80	30 4.10	

IXYS reserves the right to change limits, test conditions, and dimensions.

Fig. 1. Output Characteristics

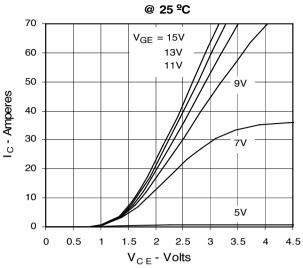


Fig. 2. Extended Output Characteristics
@ 25 °C

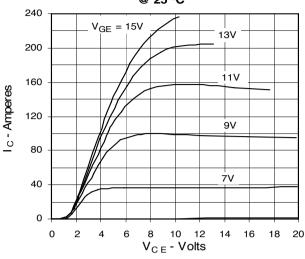


Fig. 3. Output Characteristics @ 125 °C

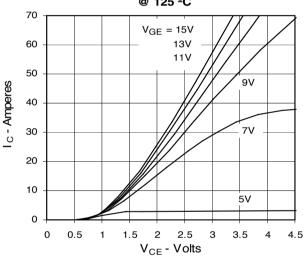


Fig. 4. Dependence of V_{CE(sat)} on Temperature

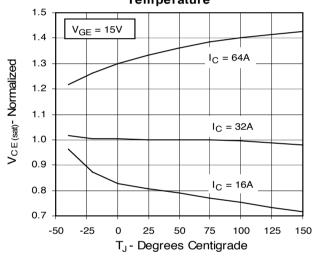


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter voltage

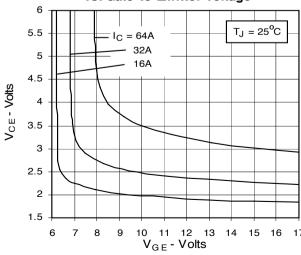


Fig. 6. Input Admittance

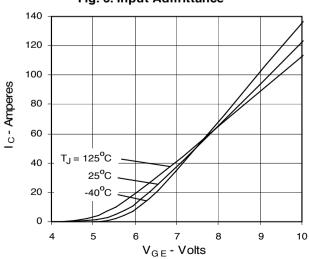




Fig. 7. Transconductance

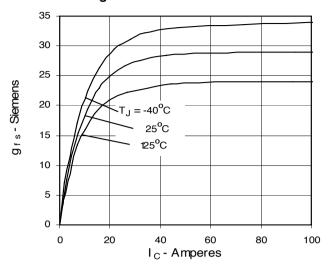


Fig. 8. Gate Charge

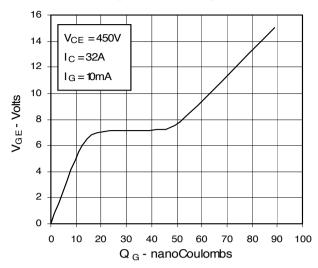


Fig. 9. Capacitance

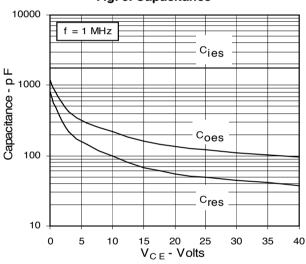


Fig. 10. Reverse-Bias Safe Operating Area

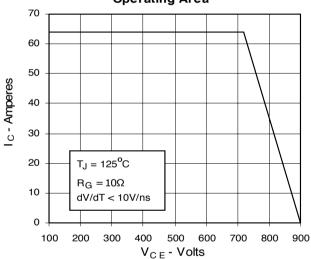


Fig. 11. Maximum Transient Thermal Resistance

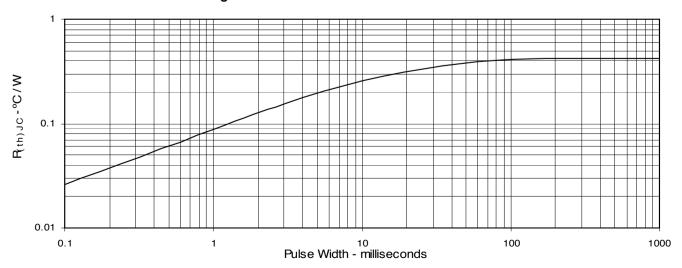


Fig. 12. Dependence of Turn-off Energy Loss on Gate Resistance

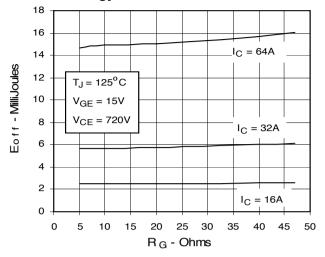


Fig. 14. Dependence of Turn-off Energy Loss on Collector Current

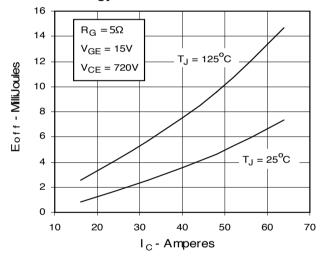


Fig. 16. Dependence of Turn-off Energy Loss on Temperature

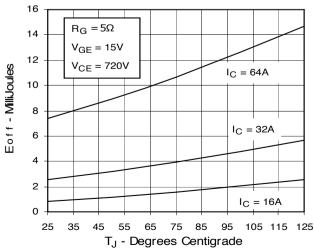


Fig. 13. Dependence of Turn-on Energy Loss on Gate Resistance

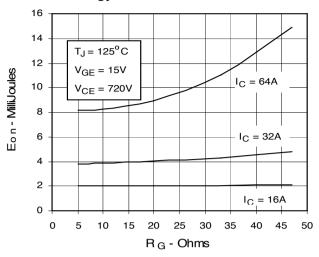


Fig. 15. Dependence of Turn-on Energy Loss on Collector Current

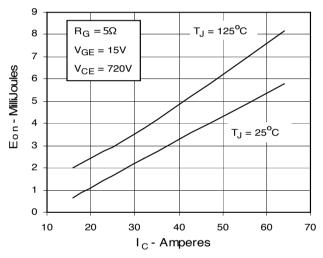


Fig. 17. Dependence of Turn-on Energy Loss on Temperature

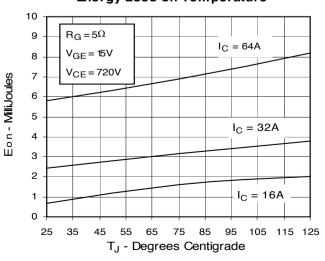




Fig. 18. Dependence of Turn-off Switching Time on Gate Resistance

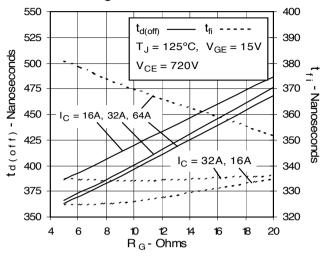


Fig. 20. Dependence of Turn-off Switching Time on Collector Current

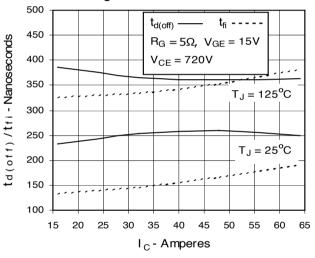


Fig. 22. Dependence of Turn-off Switching Time on Temperature

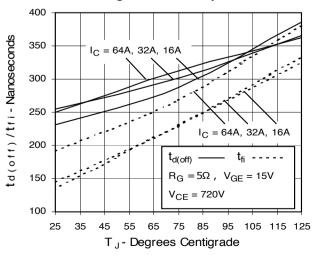


Fig. 19. Dependence of Turn-on Switching Time on Gate Resistance

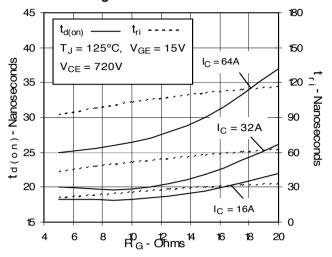


Fig. 21. Dependence of Turn-on Switching Time on Collector Current

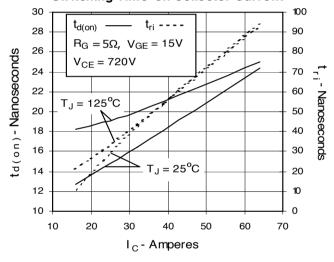
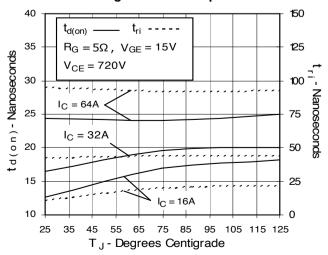


Fig. 23. Dependence of Turn-on Switching Time on Temperature





ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated objective result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.