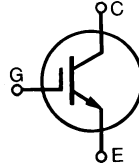


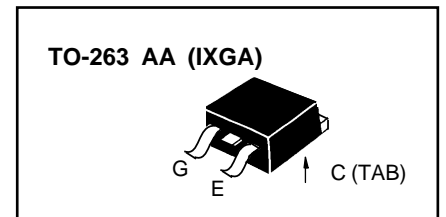
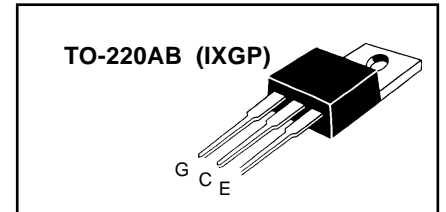
# IGBT

## IXGA/IXGP12N100 IXGA/IXGP12N100A



$V_{CES}$	$I_{C25}$	$V_{CE(sat)}$
1000 V	24 A	3.5 V
1000 V	24 A	4.0 V

Symbol	Test Conditions	Maximum Ratings	
$V_{CES}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	1000	V
$V_{CGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GE} = 1\text{ M}\Omega$	1000	V
$V_{GES}$	Continuous	$\pm 20$	V
$V_{GEM}$	Transient	$\pm 30$	V
$I_{C25}$	$T_C = 25^\circ\text{C}$	24	A
$I_{C90}$	$T_C = 90^\circ\text{C}$	12	A
$I_{CM}$	$T_C = 25^\circ\text{C}$ , 1 ms	48	A
<b>SSOA</b> <b>(RBSOA)</b>	$V_{GE} = 15\text{ V}$ , $T_{VJ} = 125^\circ\text{C}$ , $R_G = 150\ \Omega$ Clamped inductive load, $L = 300\ \mu\text{H}$	$I_{CM} = 24$ @ $0.8 V_{CES}$	A
$P_C$	$T_C = 25^\circ\text{C}$	100	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 with screw M3 Mounting torque with screw M3.5	0.45/4 Nm/lb.in. 0.55/5 Nm/lb.in.	
<b>Weight</b>		4	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$



Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{CES}$	$I_C = 3\text{ mA}$ , $V_{GE} = 0\text{ V}$	1000		V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}$ , $V_{GE} = V_{GE}$	2.5		5.0 V
$I_{CES}$	$V_{CE} = 0.8$ , $V_{CES}$ $V_{GE} = 0\text{ V}$	$T_J = 25^\circ\text{C}$		250 $\mu\text{A}$
		$T_J = 125^\circ\text{C}$		1 mA
$I_{GES}$	$V_{CE} = 0\text{ V}$ , $V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{CE90}$ , $V_{GE} = 15$	12N100		3.5 V
		12N100A		4.0 V

### Features

- International standard packages JEDEC TO-220AB and TO-263AA
- Second generation HDMOS™ process
- Low  $V_{CE(sat)}$ 
  - for minimum on-state conduction losses
- MOS Gate turn-on
  - drive simplicity

### Applications

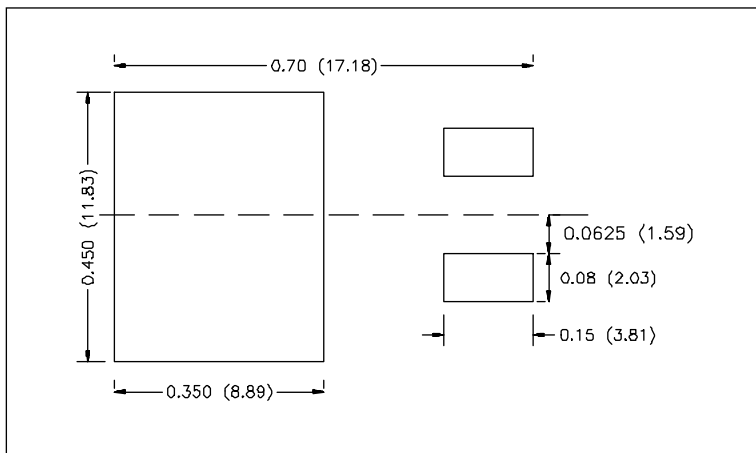
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switch-mode and resonant-mode power supplies

### Advantages

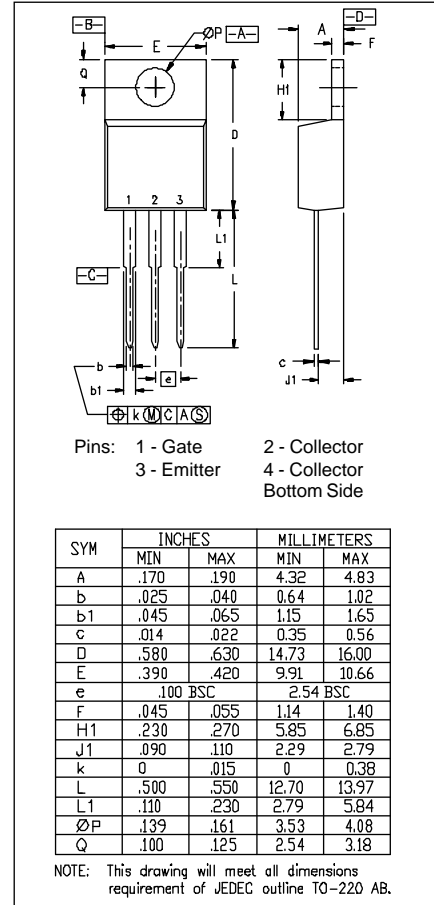
- Easy to mount with one screw
- Reduces assembly time and cost
- High power density

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values			
		Min.	Typ.	Max.	
$g_{fs}$	$I_C = I_{C90}$ ; $V_{CE} = 10\text{ V}$ , Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $\leq 2\%$	6	10	S	
$Q_g$	$I_C = I_{C90}$ ; $V_{GE} = 15\text{ V}$ , $V_{CE} = 0.5 V_{CES}$		65	90 nC	
$Q_{ge}$			8	20 nC	
$Q_{gc}$			24	45 nC	
$t_{d(on)}$	<b>Inductive load, <math>T_J = 25^\circ\text{C}</math></b> $I_C = I_{C90}$ ; $V_{GE} = 15\text{ V}$ , $L = 300\ \mu\text{H}$ $V_{CE} = 800\text{ V}$ , $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for $V_{CE}$ (Clamp) $> 0.8 V_{CES}$ , higher $T_J$ or increased $R_G$		100	ns	
$t_{ri}$			200	ns	
$t_{d(off)}$			850	1000 ns	
$t_{fi}$			12N100A	500	700 ns
			12N100	800	1000 ns
$E_{off}$		12N100A	2.5	4 mJ	
$t_{d(on)}$	<b>Inductive load, <math>T_J = 125^\circ\text{C}</math></b> $I_C = I_{C90}$ ; $V_{GE} = 15\text{ V}$ , $L = 300\ \mu\text{H}$ $V_{CE} = 800\text{ V}$ , $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for $V_{CE}$ (Clamp) $> 0.8 V_{CES}$ , higher $T_J$ or increased $R_G$		100	ns	
$t_{ri}$			200	ns	
$E_{on}$			1.1	mJ	
$t_{d(off)}$			900	ns	
$t_{fi}$			12N100A	950	ns
			12N100	1250	ns
$E_{off}$		12N100A	4	mJ	
		12N100	6	mJ	
$R_{thJC}$				1.25 K/W	
$R_{thCK}$			0.25	K/W	

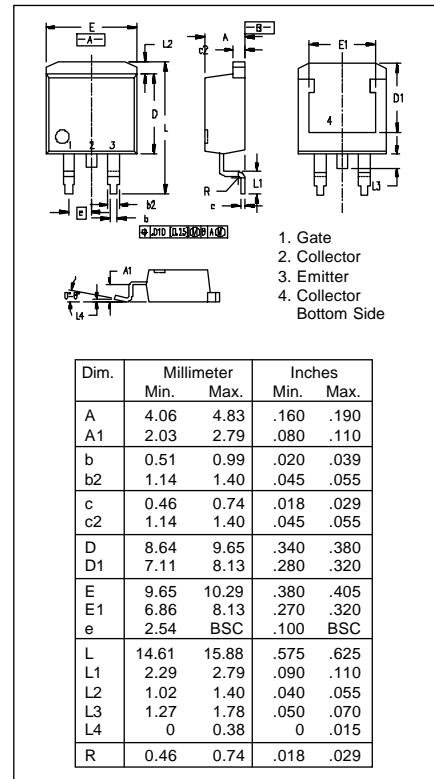
**Min. Recommended Footprint**  
(Dimensions in inches and mm)



### TO-220 AB Dimensions



### TO-263 AA Outline



Data contained herein reflects measurements and characterization data from engineering lots. 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