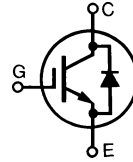


## High Speed IGBT with Diode

IXSH 30N60BD1  
IXSK 30N60BD1  
IXST 30N60BD1

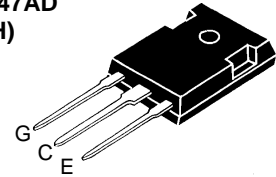
$V_{CES} = 600 \text{ V}$   
 $I_{C25} = 55 \text{ A}$   
 $V_{CE(sat)} = 2.0 \text{ V}$   
 $t_{fi} = 140 \text{ ns}$

## Short Circuit SOA Capability

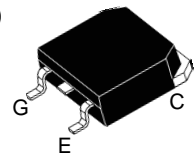


Symbol	Test Conditions	Maximum Ratings	
$V_{CES}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	600	V
$V_{CGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GE} = 1 \text{ M}\Omega$	600	V
$V_{GES}$	Continuous	$\pm 20$	V
$V_{GEM}$	Transient	$\pm 30$	V
$I_{C25}$	$T_C = 25^\circ\text{C}$	55	A
$I_{C90}$	$T_C = 90^\circ\text{C}$	30	A
$I_{CM}$	$T_C = 25^\circ\text{C}$ , 1 ms	110	A
<b>SSOA (RBSOA)</b>	$V_{GE} = 15 \text{ V}$ , $T_J = 125^\circ\text{C}$ , $R_G = 10 \Omega$ Clamped inductive load, $V_{CL} = 0.8 V_{CES}$	$I_{CM} = 60$	A
<b><math>t_{SC}</math> (SCSOA)</b>	$V_{GE} = 15 \text{ V}$ , $V_{CE} = 360 \text{ V}$ , $T_J = 125^\circ\text{C}$ $R_G = 33 \Omega$ , non repetitive	10	$\mu\text{s}$
$P_C$	$T_C = 25^\circ\text{C}$	200	W
$T_J$		-55 ... +150	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		-55 ... +150	$^\circ\text{C}$
$M_d$	Mounting torque	1.13/10	Nm/lb.in.
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
<b>Weight</b>	TO-247/TO-268	6/4	g
	TO-264	10	g

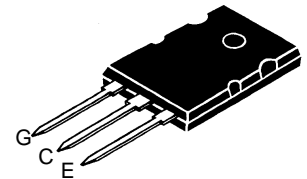
TO-247AD  
(IXSH)



TO-268 (D3)  
(IXST)



TO-264  
(IXSK)



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

### Features

- International standard packages: JEDEC TO-247, TO-264 & TO-268
- Short Circuit SOA capability
- Medium frequency IGBT and anti-parallel FRED in one package
- New generation HDMOS™ process

### Applications

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

### Advantages

- Space savings (two devices in one package)
- Easy to mount with 1 screw (isolated mounting screw hole)
- Surface mountable, high power case style
- Reduces assembly time and cost
- High power density

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$BV_{CES}$	$I_C = 750 \mu\text{A}$ , $V_{GE} = 0 \text{ V}$	600		V
$V_{GE(th)}$	$I_C = 2.5 \text{ mA}$ , $V_{CE} = V_{GE}$	4		7 V
$I_{CES}$	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$		200 $\mu\text{A}$
		$T_J = 125^\circ\text{C}$		3 mA
$I_{GES}$	$V_{CE} = 0 \text{ V}$ , $V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$V_{GE} = 15 \text{ V}$	$I_C = I_{C90}$		2.0 V
		$I_C = I_{C25}$		2.7 V

