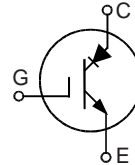


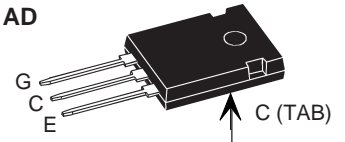
## IGBT with Reverse Blocking capability

**IXRH 50N120**  
**IXRH 50N100**

$V_{CES} = 1000 / 1200 \text{ V}$   
 $I_{C25} = 60 \text{ A}$   
 $V_{CE(sat)} = 2.5 \text{ V}$   
 $t_f = 75 \text{ ns}$



TO-247 AD



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

IGBT				
Symbol	Conditions		Maximum Ratings	
$V_{CES}$	$T_{VJ} = 25^\circ\text{C to } 150^\circ\text{C}$	IXRH 50N120	$\pm 1200$	V
		IXRH 50N100	$\pm 1000$	V
$V_{GES}$			$\pm 20$	V
$I_{C25}$	$T_C = 25^\circ\text{C}$		60	A
$I_{C90}$	$T_C = 90^\circ\text{C}$		40	A
$I_{CM}$	$V_{GE} = 0/15 \text{ V}; R_G = 22 \Omega; T_{VJ} = 125^\circ\text{C}$		80	A
$V_{CEK}$	RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$		500	V
$P_{tot}$	$T_C = 25^\circ\text{C}$		300	W

### Features

- IGBT with NPT (non punch through) structure
- reverse blocking capability independent from gate voltage
  - function of series diode monolithically integrated
  - no external series diode required
  - soft reverse recovery
- positive temperature coefficient of saturation voltage
  - optimum current distribution when paralleled
- Epoxy of TO 247 package meets UL 94V-0

### Applications

converters requiring reverse blocking capability:

- current source inverters
- matrix converters
- bi-directional switches
- resonant converters
- induction heating
- auxiliary switches for soft switching in the main current path

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^\circ\text{C}$ , unless otherwise specified)			
		min.	typ.	max.	
$V_{CE(sat)}$	$I_C = 40 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		2.5 3.0	3.1 V V	
$V_{GE(th)}$	$I_C = 2 \text{ mA}; V_{GE} = V_{CE}$	4		8 V	
$I_{CES}$	$V_{CE} = 0.8 V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		3.0	0.4 mA mA	
$I_{GES}$	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			500 nA	
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$ $E_{on}$ $E_{off}$	Inductive load, $T_{VJ} = 125^\circ\text{C}$ $V_{CE} = 500 \text{ V}; I_C = 40 \text{ A}$ $V_{GE} = 0/15 \text{ V}; R_G = 22 \Omega$		80 100 380 75 3.6 2.1	ns ns ns ns mJ mJ	
$C_{ies}$		$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$	4		nF
$Q_{Gon}$		$V_{CE} = 500 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 40 \text{ A}$	150		nC
$I_{RM}$ $t_{rr}$		$I_F = 40 \text{ A}; di_c/dt = -400 \text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$ $V_{CE} = -500 \text{ V}; V_{GE} = 15 \text{ V}$		58 840	A ns
$R_{thJC}$					0.42

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

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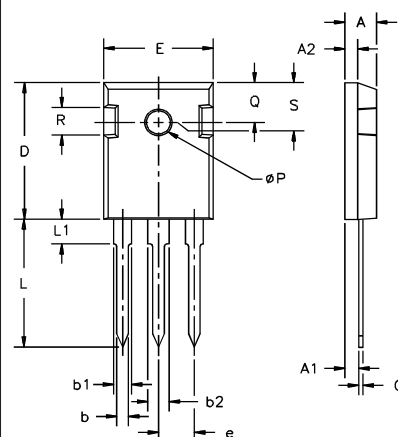
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**Component**

Symbol	Conditions	Maximum Ratings	
$T_{VJ}$		-55...+150	°C
$T_{stg}$		-55...+125	°C
$M_d$	mounting torque	0.8 - 1.2	Nm
$F_C$	mounting force with clip	20...120	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$R_{thCH}$	with heatsink compound		0.25	K/W
<b>Weight</b>			6	g

**TO-247 AD Outline**


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A <sub>1</sub>	2.2	2.54	.087	.102
A <sub>2</sub>	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b <sub>1</sub>	1.65	2.13	.065	.084
b <sub>2</sub>	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
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