

IXSH15N120A

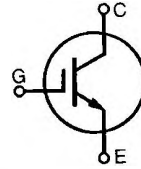
IGBT

"S" Series - Improved SCSOA Capability

$$I_{C25} = 30 \text{ A}$$

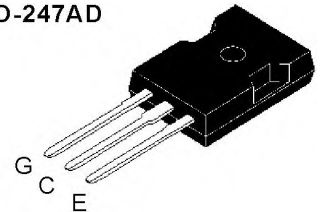
$$V_{CES} = 1200 \text{ V}$$

$$V_{CE(sat)} = 4.0 \text{ V}$$



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1200	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	30	A
I_{C90}	$T_C = 90^\circ\text{C}$	15	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	60	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_J = 125^\circ\text{C}$, $R_G = 82 \Omega$ Clamped inductive load, $L = 100 \mu\text{H}$	$I_{OM} = 30$ @ $0.8 V_{CES}$	A
t_{sc}	$T_J = 125^\circ\text{C}$, $V_{CE} = 720 \text{ V}$; $V_{GE} = 15 \text{ V}$, $R_G = 82 \Omega$	5	μs
P_C	$T_C = 25^\circ\text{C}$	150	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	1.15/10	Nm/lb-in.
Weight		6	g
Max. Lead Temperature for Soldering (1.6mm from case for 10s)		300	$^\circ\text{C}$

TO-247AD



Features

- 2nd 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
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- DC choppers

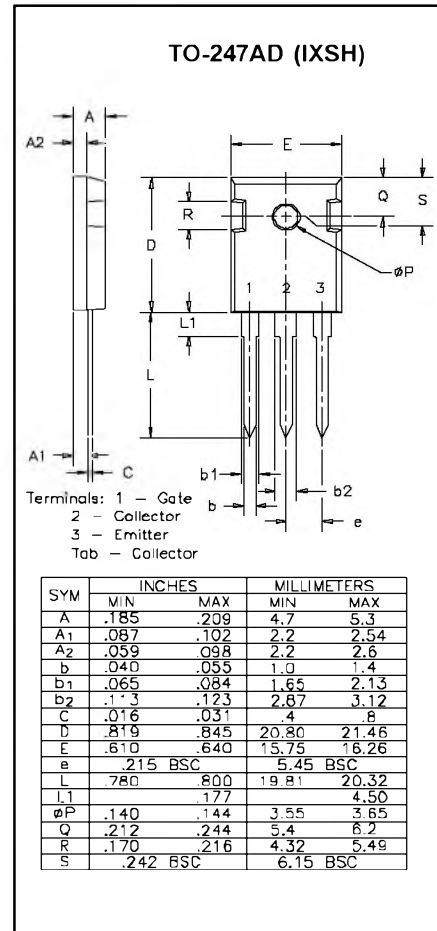
Advantages

- Easy to mount (isolated mounting hole)
- Reduces assembly time and cost

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 3.0 \text{ mA}$, $V_{GE} = 0 \text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 1.5 \text{ mA}$, $V_{CE} = V_{GE}$	4		8 V
I_{CES}	$V_{CE} = 0.8 V_{CES}$, $V_{GE} = 0 \text{ V}$ Note 2			$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ 200 μA 1 mA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$			4.0 V

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	7	S
$I_{C(on)}$	$V_{GE} = 15\text{ V}$, $V_{CE} = 10\text{ V}$		65	A
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		1800	pF
C_{oes}			160	pF
C_{res}			45	pF
Q_g	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		75	nC
Q_{ge}			20	nC
Q_{gc}			35	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		100	ns
t_{ri}	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $L = 100\ \mu\text{H}$		200	ns
$t_{d(off)}$	$R_G = 82\ \Omega$, $V_{CLAMP} = 0.8 V_{CES}$		450	ns
t_{fi}	Note 1		600	ns
E_{off}			5.4	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		100	ns
t_{ri}	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $L = 100\ \mu\text{H}$		200	ns
$E_{(on)}$	$R_G = 82\ \Omega$		1.1	mJ
$t_{d(off)}$	$V_{CLAMP} = 0.8 V_{CES}$		650	ns
t_{fi}	Note 1		900	ns
E_{off}			14.5	mJ
R_{thJC}				0.83 K/W
R_{thCK}		0.25		K/W

- Notes:
- 1.) Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or R_G values.
 - 2.) Device must be heatsunk for high temperature leakage current measurements to avoid thermal runaway.



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