

IGBT

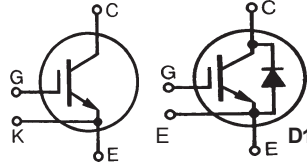
Optimized for Switching
up to 5 kHz

IXGN 80N60A2
IXGN 80N60A2D1

$$V_{CES} = 600 \text{ V}$$

$$I_{C25} = 160 \text{ A}$$

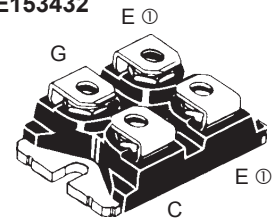
$$V_{CE(sat)} = 1.35 \text{ V}$$



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	± 20 V
V_{GEM}	Transient	± 30 V
I_{C25}	$T_C = 25^\circ\text{C}$	160 A
I_{C110}	$T_C = 110^\circ\text{C}$	80 A
I_{F110}	$T_C = 110^\circ\text{C}$	60 A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	320 A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 2.0 \Omega$ Clamped inductive load	$I_{CM} = 160$ @ $0.8 V_{CES}$
P_C	$T_C = 25^\circ\text{C}$	625 W
T_J		$-55 \dots +150$ °C
T_{JM}		150 °C
T_{stg}		$-55 \dots +150$ °C
V_{ISOL}	50/60 Hz $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	2500 V~ 3000 V~
M_d	Mounting torque Terminal connection torque (M4)	1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.
Weight		30 g

SOT-227B, miniBLOC

E153432



G = Gate, C = Collector, E = Emitter
① either emitter terminal can be used as Main or Kelvin Emitter

Features

- International standard package miniBLOC
- UL recognized
- Aluminium nitride isolation - high power dissipation
- Isolation voltage 3000 V~
- Very high current IGBT
- Low $V_{CE(sat)}$ for minimum on-state conduction losses
- MOS Gate turn-on - drive simplicity
- Low collector-to-case capacitance (< 50 pF)
- Low package inductance (< 5 nH) - easy to drive and to protect

Applications

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

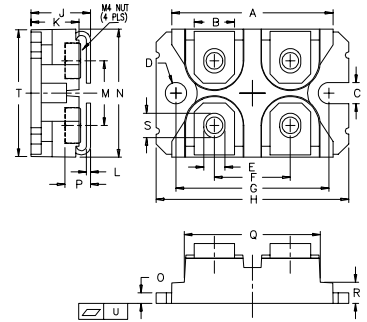
Advantages

- Easy to mount with 2 screws
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$V_{GE(th)}$	$I_C = 1 \text{ mA}, V_{CE} = V_{GE}$	2.5		5.5 V
I_{CES}	$V_{CE} = V_{CES}, V_{GE} = 0 \text{ V}$ Note 3	80N60A2 80N60A2D1		25 μA 650 μA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			± 400 nA
$V_{CE(sat)}$	$I_C = I_{C110}, V_{GE} = 15 \text{ V}, \text{ Note 1}$		1.2	1.35 V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$I_C = 60\text{ A}; V_{CE} = 10\text{ V}$, Note 1		TBD	S
C_{ies} C_{oes} C_{res}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		TBD	pF
			TBD	pF
			TBD	pF
Q_g Q_{ge} Q_{gc}	$I_C = I_{C110}, V_{GE} = 15\text{ V}, V_{CE} = 0.5 V_{CES}$		TBD	nC
			TBD	nC
			TBD	nC
$t_{d(on)}$ t_{ri} $t_{d(off)}$ t_{fi} E_{off}	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C110}, V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 2.0\ \Omega$		TBD	ns
			TBD	ns
			TBD	ns
			250	ns
			4	mJ
$t_{d(on)}$ t_{ri} E_{on} $t_{d(off)}$ t_{fi} E_{off}	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C110}, V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 2.4\ \Omega$		TBD	ns
			TBD	ns
			TBD	mJ
			TBD	ns
			TBD	ns
			10	mJ
R_{thJC} R_{thCK}			0.05	0.2 K/W K/W

SOT-227B miniBLOC



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.240	1.255	31.50	31.88
B	.307	.323	7.80	8.20
C	.161	.169	4.09	4.29
D	.161	.169	4.09	4.29
E	.161	.169	4.09	4.29
F	.587	.595	14.91	15.11
G	1.186	1.193	30.12	30.30
H	1.496	1.505	38.00	38.23
J	.460	.481	11.68	12.22
K	.351	.378	8.92	9.60
L	.030	.033	0.76	0.84
M	.496	.506	12.60	12.85
N	.990	1.001	25.15	25.42
O	.078	.084	1.98	2.13
P	.195	.235	4.95	5.97
Q	1.045	1.059	26.54	26.90
R	.155	.174	3.94	4.42
S	.186	.191	4.72	4.85
T	.968	.987	24.59	25.07
U	-.002	.004	-0.05	0.1

Reverse Diode (FRED) Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	typ.	max.
V_F	$I_F = 60\text{ A}$, Note 1 $T_J = 150^\circ\text{C}$		2.05 V 1.4 V
I_{RM}	$I_F = I_{C90}, V_{GE} = 0\text{ V}, -di_F/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}, T_J = 100^\circ\text{C}$		8.0 A
t_{rr}	$I_F = 1\text{ A}, -di/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}$	35	ns
R_{thJC}			1.65 K/W

- Note: 1. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$
 2. Remarks: Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$, higher T_J or increased R_G
 3. Parts must be heatsunk for high temperature I_{CES} measurements

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:	4,850,072	4,931,844	5,034,796	5,063,307	5,237,481	5,381,025	6,404,065B1	6,162,665	6,534,343	6,583,505
	4,835,592	4,881,106	5,017,508	5,049,961	5,187,117	5,486,715	6,306,728B1	6,259,123B1	6,306,728B1	6,683,344