

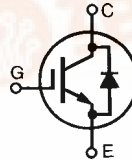


Advance Technical Information

**BIMOSFET™ Monolithic Bipolar MOS Transistor**

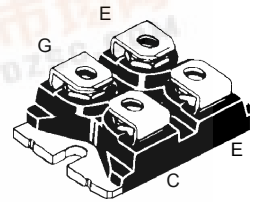
**IXBN 75N170A**

**V<sub>CES</sub> = 1700 V**  
**I<sub>C25</sub> = 75 A**  
**V<sub>CE(sat)</sub> = 6.0 V**  
**t<sub>fi</sub> = 60 ns**



Symbol	Test Conditions	Maximum Ratings
V <sub>CES</sub>	T <sub>J</sub> = 25°C to 150°C	1700 V
V <sub>CGR</sub>	T <sub>J</sub> = 25°C to 150°C; R <sub>GE</sub> = 1 MΩ	1700 V
V <sub>GES</sub>	Continuous	±20 V
V <sub>GEM</sub>	Transient	±30 V
I <sub>C25</sub>	T <sub>C</sub> = 25°C	75 A
I <sub>C90</sub>	T <sub>C</sub> = 90°C	42 A
I <sub>CM</sub>	T <sub>C</sub> = 25°C, 1 ms	240 A
<b>SSOA (RBSOA)</b>	V <sub>GE</sub> = 15 V, T <sub>VJ</sub> = 125°C, R <sub>G</sub> = 10 Ω Clamped inductive load	I <sub>CM</sub> = 100 A V <sub>CES</sub> = 1350 V
<b>T<sub>SC</sub> (SCSOA)</b>	V <sub>GE</sub> = 15 V, V <sub>CES</sub> = 1200V, T <sub>J</sub> = 125°C R <sub>G</sub> = 10 Ω non repetitive	10 μs
P <sub>C</sub>	T <sub>C</sub> = 25°C	500 W
T <sub>J</sub>		-55 ... +150 °C
T <sub>JM</sub>		150 °C
T <sub>stg</sub>		-55 ... +150 °C
M <sub>d</sub>	Mounting torque Terminal connection torque (M4)	1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.
<b>Weight</b>		30 g

miniBLOC, SOT-227 B (IXBN)



G = Gate  
E = Emitter  
C = Collector

Either Source terminal at miniBLOC can be used as Main or Kelvin Emitter

**Features**

- High Blocking Voltage
- Fast switching
- High current handling capability
- MOS Gate turn-on - drive simplicity
- Isolation voltage 2500V

**Applications**

- AC motor speed control
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- Substitutes for high voltage MOSFETs

**Advantages**

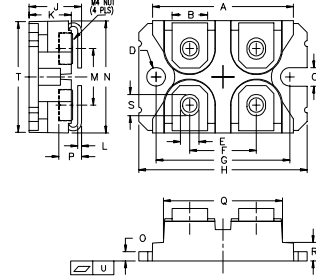
- Lower conduction losses than MOSFETs
- High power density
- Easy to mount with 2 screws
- Space saving

Symbol	Test Conditions	Characteristic Values (T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
<b>BV<sub>CES</sub></b>	I <sub>C</sub> = 250 μA, V <sub>GE</sub> = 0 V	1700		V
<b>V<sub>GE(th)</sub></b>	I <sub>C</sub> = 1500 μA, V <sub>CE</sub> = V <sub>GE</sub>	2.5		V
<b>I<sub>CES</sub></b>	V <sub>CE</sub> = 0.8 V <sub>CES</sub> V <sub>GE</sub> = 0 V			50 μA 1.5 mA
<b>I<sub>GES</sub></b>	V <sub>CE</sub> = 0 V, V <sub>GE</sub> = ±20 V			±200 nA
<b>V<sub>CE(sat)</sub></b>	I <sub>C</sub> = I <sub>C90</sub> , V <sub>GE</sub> = 15 V	4.5 5.0	6.0	V V



Symbol	Test Conditions	Characteristic Values		
		(T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
<b>g<sub>fs</sub></b>	I <sub>C</sub> = I <sub>C90</sub> ; V <sub>CE</sub> = 10 V, Pulse test, t ≤ 300 μs, duty cycle ≤ 2 %	30	50	S
<b>C<sub>ies</sub></b>	V <sub>CE</sub> = 25 V, V <sub>GE</sub> = 0 V, f = 1 MHz		7400	pF
<b>C<sub>oes</sub></b>			340	pF
<b>C<sub>res</sub></b>			90	pF
<b>Q<sub>g</sub></b>	I <sub>C</sub> = I <sub>C90</sub> , V <sub>GE</sub> = 15 V, V <sub>CE</sub> = 0.5 V <sub>CES</sub>		310	nC
<b>Q<sub>ge</sub></b>			60	nC
<b>Q<sub>gc</sub></b>			110	nC
<b>t<sub>d(on)</sub></b>	<b>Inductive load, T<sub>J</sub> = 25°C</b> I <sub>C</sub> = I <sub>C90</sub> , V <sub>GE</sub> = 15 V V <sub>CE</sub> = 0.8 V <sub>CES</sub> , R <sub>G</sub> = R <sub>off</sub> = 1.0 Ω Remarks: Switching times may increase for V <sub>CE</sub> (Clamp) > 0.8 • V <sub>CES</sub> , higher T <sub>J</sub> or increased R <sub>G</sub>		35	ns
<b>t<sub>ri</sub></b>			60	ns
<b>t<sub>d(off)</sub></b>			240	ns
<b>t<sub>fi</sub></b>			60	ns
<b>E<sub>off</sub></b>			6.0	mJ
<b>t<sub>d(on)</sub></b>		<b>Inductive load, T<sub>J</sub> = 125°C</b> I <sub>C</sub> = I <sub>C90</sub> , V <sub>GE</sub> = 15 V V <sub>CE</sub> = 0.8 V <sub>CES</sub> , R <sub>G</sub> = R <sub>off</sub> = 1.0 Ω Remarks: Switching times may increase for V <sub>CE</sub> (Clamp) > 0.8 • V <sub>CES</sub> , higher T <sub>J</sub> or increased R <sub>G</sub>		35
<b>t<sub>ri</sub></b>			60	ns
<b>E<sub>on</sub></b>			10	mJ
<b>t<sub>d(off)</sub></b>			280	ns
<b>t<sub>fi</sub></b>			120	ns
<b>E<sub>off</sub></b>			12	mJ
<b>R<sub>thJC</sub></b>				0.2 KW
<b>R<sub>thCK</sub></b>		0.05		KW

### miniBLOC, SOT-227 B



M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	38.00	38.23	1.496	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004

### Reverse Diode

Symbol	Test Conditions	Characteristic Values		
		(T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
<b>V<sub>F</sub></b>	I <sub>F</sub> = I <sub>C90</sub> , V <sub>GE</sub> = 0 V, Pulse test, t < 300 us, duty cycle d < 2%			5.0 V
<b>I<sub>RM</sub></b>	I <sub>F</sub> = 25A, V <sub>GE</sub> = 0 V, -di <sub>F</sub> /dt = 50 A/us V <sub>R</sub> = 100V		15	A
<b>t<sub>rr</sub></b>			330	ns