

## NPT<sup>3</sup> IGBT

in miniBLOC package

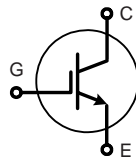
## IXEN 60N120

## IXEN 60N120D1

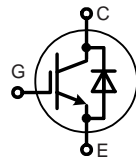
$$I_{C25} = 100 \text{ A}$$

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

$$V_{CE(sat) \text{ typ.}} = 2.1 \text{ V}$$



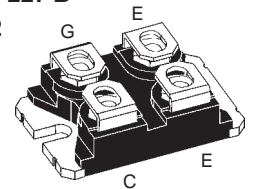
IXEN 60N120



IXEN 60N120D1

miniBLOC, SOT-227 B

E153432


 C = Collector  
 G = Gate  
 E = Emitter \*

\* Either Emitter terminal can be used as Main or Kelvin Emitter

### IGBT

Symbol	Conditions	Maximum Ratings	
$V_{CES}$	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	1200	V
$V_{GES}$		$\pm 20$	V
$I_{C25}$	$T_C = 25^{\circ}\text{C}$	100	A
$I_{C90}$	$T_C = 90^{\circ}\text{C}$	65	A
$I_{CM}$ $V_{CEK}$	$V_{GE} = \pm 15 \text{ V}; R_G = 22 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$	100	A
		$V_{CES}$	
$t_{SC}$ (SCSOA)	$V_{CE} = 900 \text{ V}; V_{GE} = \pm 15 \text{ V}; R_G = 22 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	$\mu\text{s}$
$P_{tot}$	$T_C = 25^{\circ}\text{C}$	445	W

### Features

- NPT<sup>3</sup> IGBT
  - low saturation voltage
  - positive temperature coefficient for easy paralleling
  - fast switching
  - short tail current for optimized performance in resonant circuits
- miniBLOC package
  - isolated copper base plate
  - screw terminals
  - kelvin emitter terminal for easy drive
  - industry standard outline

### Applications

- single switches and with complementary free wheeling diodes
- choppers
- phaselegs, H bridges, three phase bridges e.g. for
  - power supplies, UPS
  - AC, DC and SR drives
  - induction heating

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)			
		min.	typ.	max.	
$V_{CE(sat)}$	$I_C = 60 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	2.1	2.7	V	
		2.5		V	
$V_{GE(th)}$	$I_C = 2 \text{ mA}; V_{GE} = V_{CE}$	4.5		6.5 V	
$I_{CES}$	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.1	0.1 mA	
$I_{GES}$	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			200 nA	
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600 \text{ V}; I_C = 60 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 22 \Omega$		150	ns	
				60	ns
				700	ns
				50	ns
$E_{on}$ $E_{off}$				7.2	mJ
			6.0	mJ	
$C_{ies}$	$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$		3.8	nF	
$Q_{Gon}$	$V_{CE} = 600 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 50 \text{ A}$		500	nC	
$R_{thJC}$				0.28 KW	

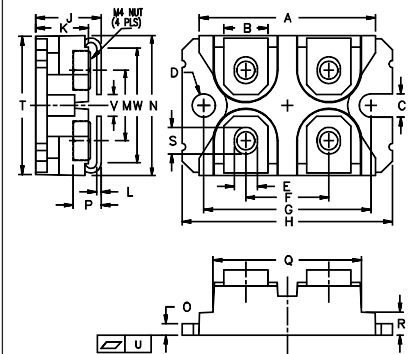
**Diode (D1 version only)**

Symbol	Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_F$	$I_F = 55\text{ A}, V_{GE} = 0\text{ V}$		2.4	2.6 V
	$I_F = 55\text{ A}, V_{GE} = 0\text{ V}, T_J = 125^\circ\text{C}$		1.9	V
$I_F$	$T_C = 25^\circ\text{C}$			110 A
	$T_C = 90^\circ\text{C}$			60 A
$I_{RM}$	$I_F = 55\text{ A}, -di_F/dt = 400\text{ A}/\mu\text{s}, V_R = 600\text{ V}$		40	A
$t_{rr}$	$V_{GE} = 0\text{ V}, T_J = 125^\circ\text{C}$		200	ns
$t_{rr}$	$I_F = 1\text{ A}, -di_F/dt = 100\text{ A}/\mu\text{s}, V_R = 30\text{ V}, V_{GE} = 0\text{ V}$		40	ns
$R_{thJC}$				0.6 KW

**Component**

Symbol	Conditions	Maximum Ratings	
$T_{VJ}$		-40...+150	$^\circ\text{C}$
$T_{stg}$		-40...+150	$^\circ\text{C}$
$V_{ISOL}$	$I_{ISOL} \leq 1\text{ mA}; 50/60\text{ Hz}$	2500	V~
$M_D$	mounting torque (M4)	1.5	Nm
	terminal connection torque (M4)	1.5	Nm

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$R_{thCH}$	with heatsink compound		0.1	KW
<b>Weight</b>			30	g

**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	37.80	38.20	1.489	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
V	3.30	4.57	0.130	0.180
W	0.780	0.830	0.030	0.033

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