

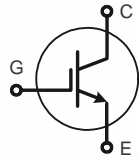


Advanced Technical Information

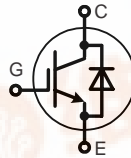
NPT³ IGBT
in miniBLOC package

IXEN 60N120
IXEN 60N120D1

I_{C25} = 100 A
V_{CES} = 1200 V
V_{CE(sat) typ.} = 2.1 V

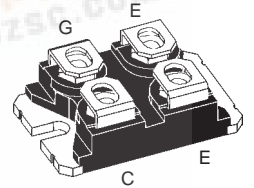


IXEN 60N120



IXEN 60N120D1

miniBLOC, SOT-227 B



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°C to 150°C	1200	V
V _{GES}		± 20	V
I _{C25}	T _C = 25°C	100	A
I _{C90}	T _C = 90°C	65	A
I _{CM} V _{CEK}	V _{GE} = ±15 V; R _G = 22 Ω; T _{VJ} = 125°C RBSOA, Clamped inductive load; L = 100 μH	100	A
t _{SC} (SCSOA)	V _{CE} = 900 V; V _{GE} = ±15 V; R _G = 22 Ω; T _{VJ} = 125°C non-repetitive	10	μs
P _{tot}	T _C = 25°C	445	W

Features

- NPT³ 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°C, unless otherwise specified)			
		min.	typ.	max.	
V _{CE(sat)}	I _C = 60 A; V _{GE} = 15 V; T _{VJ} = 25°C T _{VJ} = 125°C	2.1	2.7	V	
V _{GE(th)}	I _C = 2 mA; V _{CE} = V _{CE}	4.5	6.5	V	
I _{CES}	V _{CE} = V _{CES} ; V _{GE} = 0 V; T _{VJ} = 25°C T _{VJ} = 125°C	0.1	0.1	mA	
I _{GES}	V _{CE} = 0 V; V _{GE} = ± 20 V		200	nA	
t _{d(on)} t _r t _{d(off)} t _f E _{on} E _{off}	Inductive load, T _{VJ} = 125°C V _{CE} = 600 V; I _C = 60 A V _{GE} = ±15 V; R _G = 22 Ω	150	60	ns	
		700	50	ns	
		7.2	6.0	mJ	
		6.0		mJ	
C _{ies}		V _{CE} = 25 V; V _{GE} = 0 V; f = 1 MHz	3.8		nF
Q _{Gon}		V _{CE} = 600 V; V _{GE} = 15 V; I _C = 50 A	500		nC
R _{thJC}			0.28	KW	



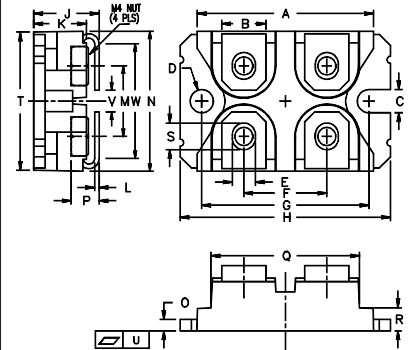
Diode (D1 version only)

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
	$I_F = 55\text{ A}, V_{GE} = 0\text{ V}, T_J = 125^\circ\text{C}$		1.9	
I_F	$T_C = 25^\circ\text{C}$			110
	$T_C = 90^\circ\text{C}$			60
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
				K/W

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	K/W
Weight			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