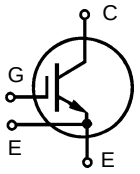
IXYS

High Voltage IGBT

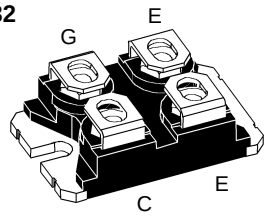
IXDN 75N120

V_{CES} = 1200 V
I_{C25} = 150 A
$V_{CE(sat)\ typ}$ = 2.2 V

Short Circuit SOA Capability
Square RBSOA



miniBLOC, SOT-227 B
E153432



E = Emitter ①, C = Collector
G = Gate, E = Emitter ①

① Either Emitter terminal can be used as Main or Kelvin Emitter

Symbol	Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	1200	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 20 kΩ	1200	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C	150	A
I_{C90}	T_C = 90°C	95	A
I_{CM}	T_C = 90°C, t_p = 1 ms	190	A
RBSOA	V_{GE} = ±15 V, T_J = 125°C, R_G = 15 Ω Clamped inductive load, L = 30 µH	I_{CM} = 150 $V_{CEK} < V_{CES}$	A
t_{SC} **(SCSOA)**	V_{GE} = ±15 V, V_{CE} = V_{CES}, T_J = 125°C R_G = 15 Ω, non repetitive	10	µs
P_C	T_C = 25°C IGBT	660	W
V_{ISOL}	50/60 Hz; $I_{ISOL} \leq$ 1 mA	2500	V~
T_J		-40 ... +150	°C
T_{stg}		-40 ... +150	°C
M_d	Mounting torque Terminal connection torque (M4)	1.5/13 1.5/13	Nm/lb.in. Nm/lb.in.
Weight		30	g

Symbol	Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
$V_{(BR)CES}$	V_{GE} = 0 V	1200			V
$V_{GE(th)}$	I_C = 3 mA, V_{CE} = V_{GE}	4.5		6.5	V
I_{CES}	V_{CE} = V_{CES} T_J = 25°C			4	mA
	T_J = 125°C		6		mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V			± 500	nA
$V_{CE(sat)}$	I_C = 75 A, V_{GE} = 15 V		2.2	2.7	V

Features

- NPT IGBT technology
- low saturation voltage
- low switching losses
- square RBSOA, no latch up
- high short circuit capability
- positive temperature coefficient for easy paralleling
- MOS input, voltage controlled
- International standard package miniBLOC

Advantages

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

Typical Applications

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

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Symbol	Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		5500		pF
C_{oes}			750		pF
C_{res}			330		pF
Q_g	I_C = 75 A, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}		360		nC
$t_{d(on)}$	**Inductive load, T_J = 125°C** I_C = 75 A, V_{GE} = ±15 V, V_{CE} = 600 V, R_G = 15 Ω		100		ns
t_r			50		ns
$t_{d(off)}$			650		ns
t_f			50		ns
E_{on}			12.1		mJ
E_{off}			10.5		mJ
R_{thJC}				0.19	K/W
R_{thCK}	Package with heatsink compound		0.1		K/W

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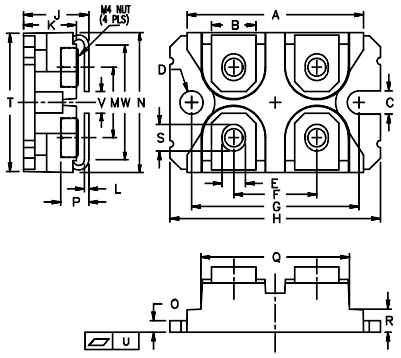

M4 screws (4x) supplied

Dim.	Millimeter Min.	Max.	Inches 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	19.81	21.08

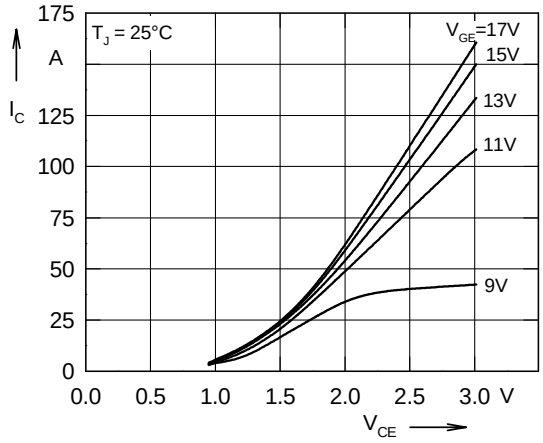

Fig. 1 Typ. output characteristics

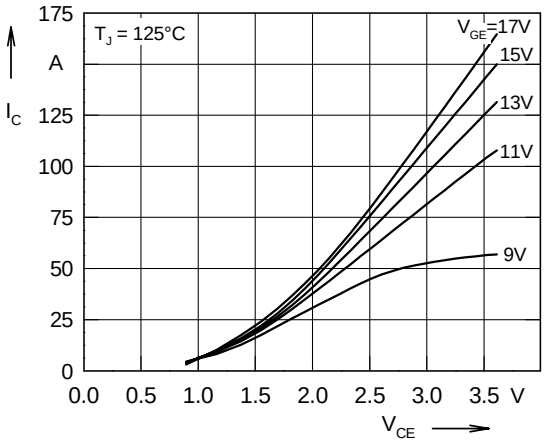

Fig. 2 Typ. output characteristics

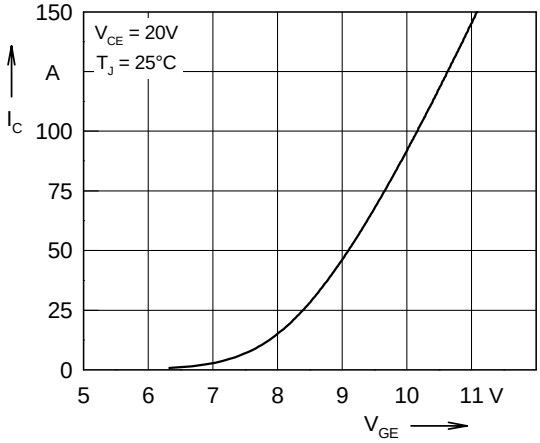

Fig. 3 Typ. transfer characteristics

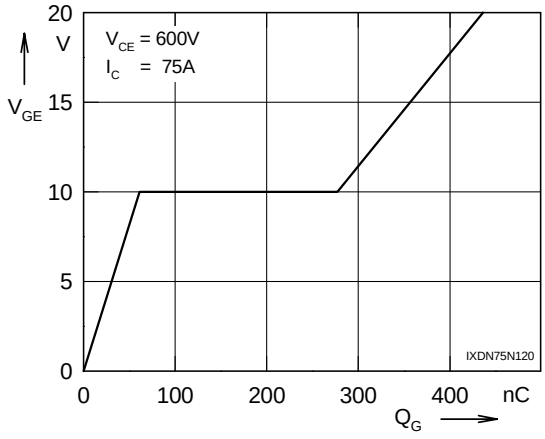

Fig. 4 Typ. turn on gate charge

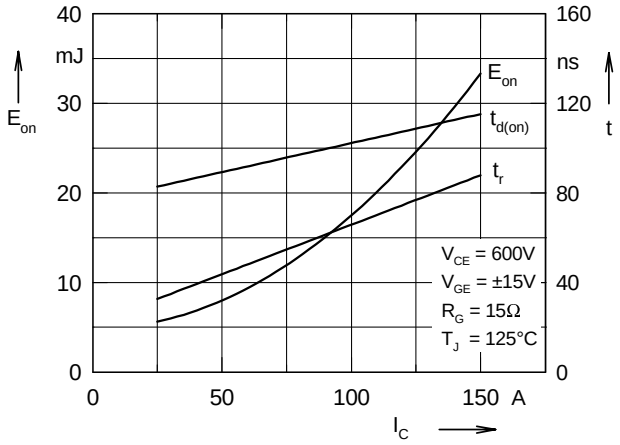

Fig. 5 Typ. turn on energy and switching times versus collector current

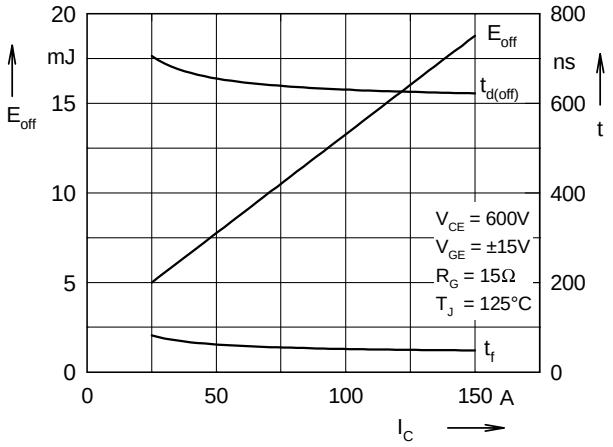

Fig. 6 Typ. turn off energy and switching times versus collector current

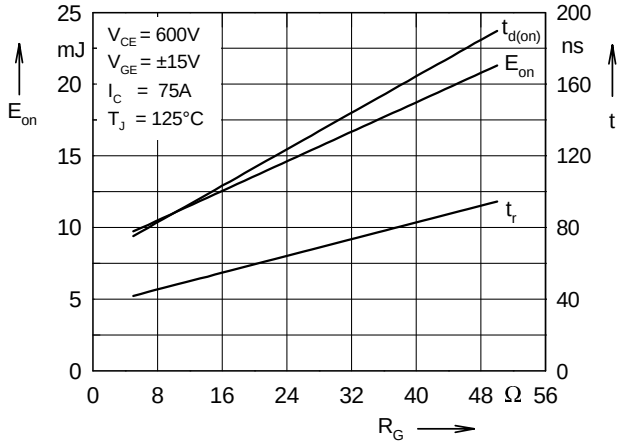

Fig. 7 Typ. turn on energy and switching times versus gate resistor

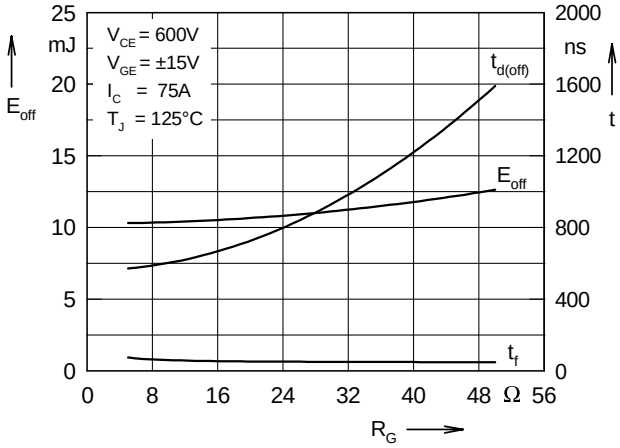

Fig.8 Typ. turn off energy and switching times versus gate resistor

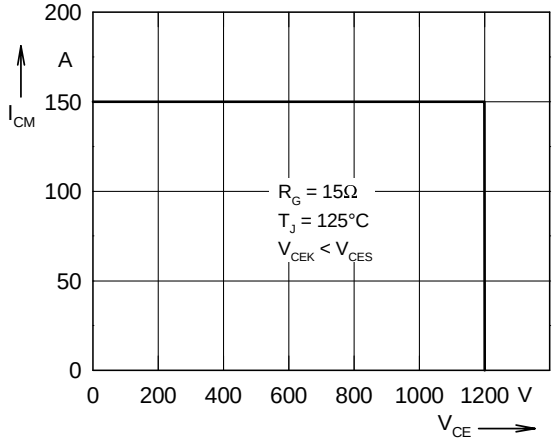

Fig. 9 Reverse biased safe operating area RBSOA

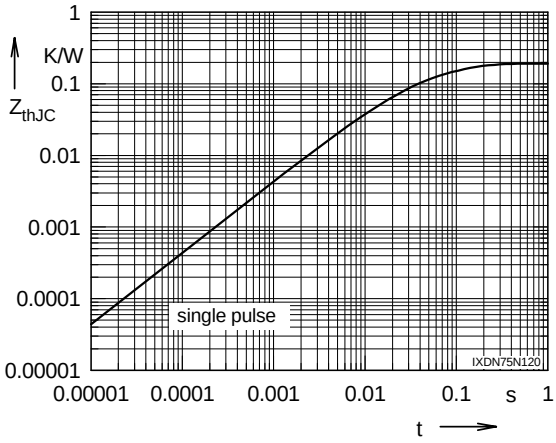

Fig. 10 Typ. transient thermal impedance