IXYS

Power MOSFETs with Extended FBSOA

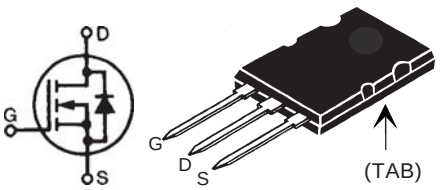
IXTB 30N100L
IXTN 30N100L

V_{DSS} = 1000 V
I_{D25} = 30 A
$R_{DS(on)}$ ≤ 0.45 Ω

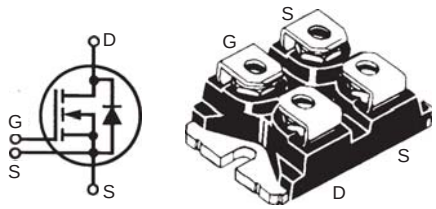
N-Channel Enhancement Mode
Avalanche Rated

Symbol	Test Conditions	Maximum Ratings IXTB	IXTN	
V_{DSS}	T_J = 25°C to 150°C	1000	1000	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ	1000	1000	V
V_{GS}	Continuous	± 30	± 30	V
V_{GSM}	Transient	± 40	± 40	V
I_{D25}	T_C = 25°C	30	30	A
I_{DM}	T_C = 25°C, Pulse width limited by T_{JM}	70	70	A
I_{AR}	T_C = 25°C	30	30	A
E_{AR}	T_C = 25°C	80	80	mJ
E_{AS}	T_C = 25°C	2.0	2.0	J
P_D	T_C = 25°C	800	800	W
T_J		-55 ... +150		°C
T_{JM}			150	°C
T_{stg}		-55 ... +150		°C
T_L	1.6 mm (0.063 in) from case for 10 s	300	-	°C
V_{ISOL}	50/60 Hz, RMS t = 1 min	-	2500	V~
	I_{ISOL} < 1 mA t = 1 s	-	3000	V~
M_d	Mounting torque	-	1.5/13	Nm/lb.in.
	Terminal connection torque	-	1.5/13	Nm/lb.in.
F_C	Mounting force 28..150 /6.4..30		-	N/lb.
Weight	PLUS264		10	g
	SOT-227B		30	g

PLUS264 (IXTB)



miniBLOC, SOT-227 B (IXTN)
E153432



G = Gate D = Drain
S = Source TAB = Drain

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

Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
V_{DSS}	V_{GS} = 0 V, I_D = 1 mA	1000			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	3		5	V
I_{GSS}	V_{GS} = ± 30 V_{DC}, V_{DS} = 0			± 200	nA
I_{DSS}	V_{DS} = V_{DSS}, V_{GS} = 0 V T_J = 25°C			50	µA
	T_J = 125°C			1	mA
$R_{DS(on)}$	V_{GS} = 20 V, I_D = 0.5 • I_{D25}, Note 1			0.45	Ω

Features
- Designed for linear operation
- International standard packages
- Molding epoxies meet UL 94 V-0 flammability classification
- SOT-227B miniBLOC with aluminium nitride isolation

Applications
- Programmable loads
- Current regulators
- DC-DC converters
- Battery chargers
- DC choppers
- Temperature and lighting controls

Advantages
- Easy to mount
- Space savings
- High power density

IXYS reserves the right to change limits, test conditions, and dimensions.

Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 20 V; I_D = 0.5 • I_{D25}, pulse test	6	10	15	S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		11.4		nF
C_{oss}			800		pF
C_{rss}			150		pF
$t_{d(on)}$	V_{GS} = 15 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		36		ns
t_r	R_G = 2 Ω (External)		70		ns
$t_{d(off)}$			100		ns
t_f			78		ns
$Q_{g(on)}$	V_{GS} = 15 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		530		nC
Q_{gs}			125		nC
Q_{gd}			150		nC
R_{thJC}				0.156	K/W
R_{thCK}	PLUS264		0.15		K/W
R_{thCK}	SOT-227B		0.05		K/W

Safe Operating Area Specification

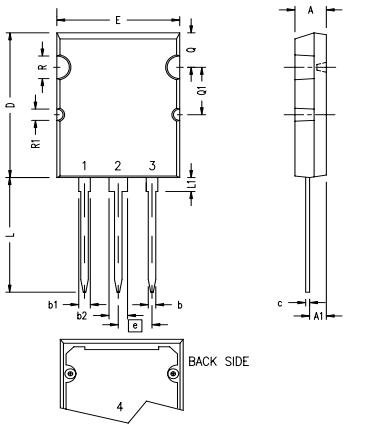
Symbol	Test Conditions	Min.	Typ.	Max.	
SOA	V_{DS} = 600 V, I_D = 0.5A, T_C = 90°C	300			W

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0 V			30	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			50	A
V_{SD}	I_F = I_S, V_{GS} = 0 V, Pulse test, t < 300 ms, duty cycle d < 2 %			1.5	V
t_{rr}	I_F = I_S, -di/dt = 100 A/µs, V_R = 100 V		1000		ns

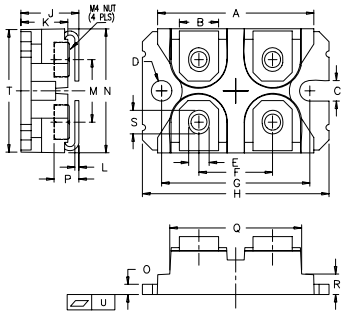
Note 1: Pulse test, t < 300 µs, duty cycle d < 2 %

PLUS264 Outline



SYM	INCHES MIN	MAX
A	.185	.209
A1	.102	.118
b	.037	.055
b1	.087	.102
b2	.110	.126
c	.017	.029
D	1.007	1.047
E	.760	.799
e	.215 BSC	
L	.779	.842
L1	.087	.102
Q	.240	.256
Q1	.330	.346
ØR	.155	.187
ØR1	.085	.093

miniBLOC, SOT-227 B



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	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

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Fig. 1. Output Characteristics @ 25ºC

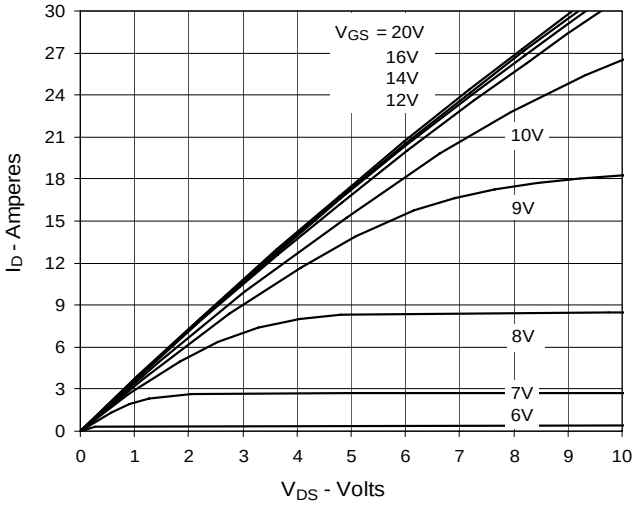

Fig. 2. Extended Output Characteristics @ 25ºC

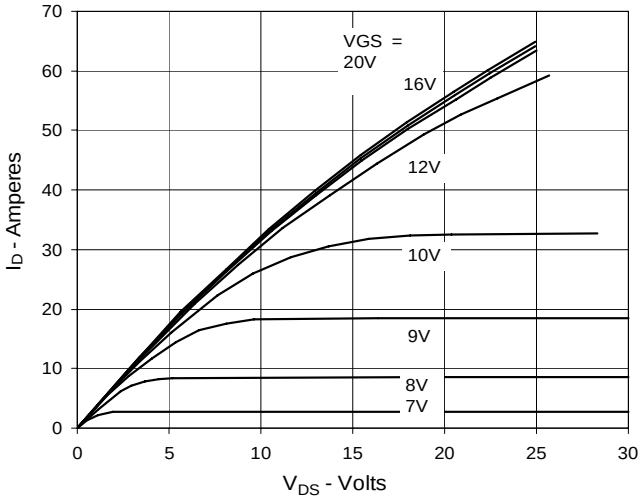

Fig. 3. Output Characteristics @ 125ºC

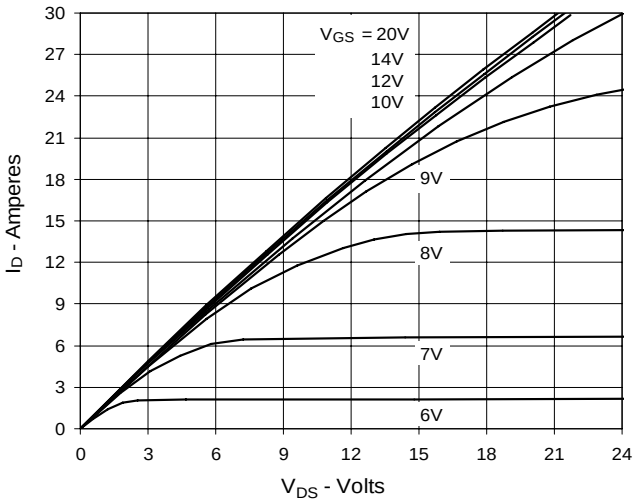

Fig. 4. $R_{DS(on)}$ Normalized to I_D = 32A Value vs. Junction Temperature

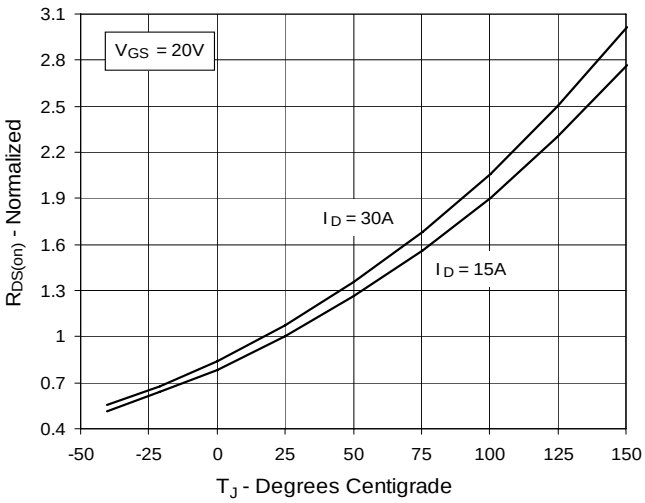

Fig. 5. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. Drain Current

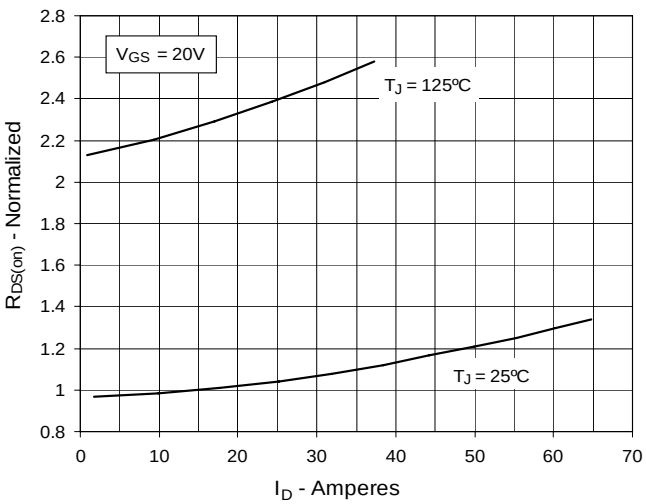

Fig. 6. Maximum Drain Current vs. Case Temperature

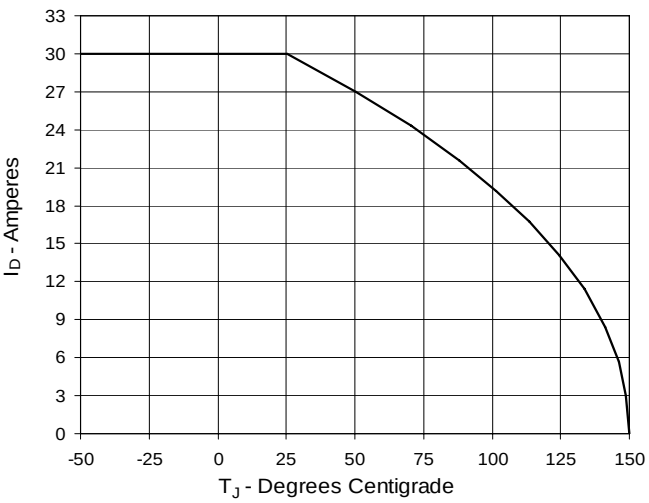

Fig. 7. Input Admittance

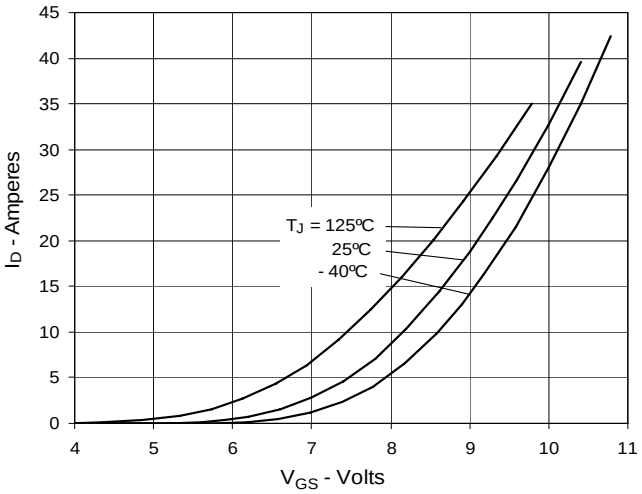

Fig. 8. Transconductance

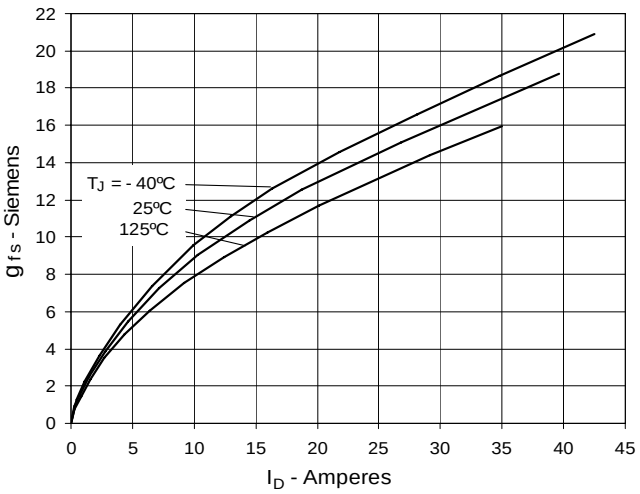

Fig. 9. Forward Voltage Drop of Intrinsic Diode

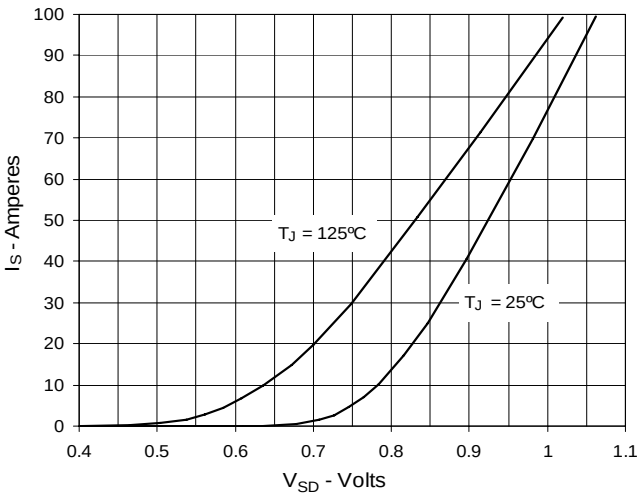

Fig. 10. Gate Charge

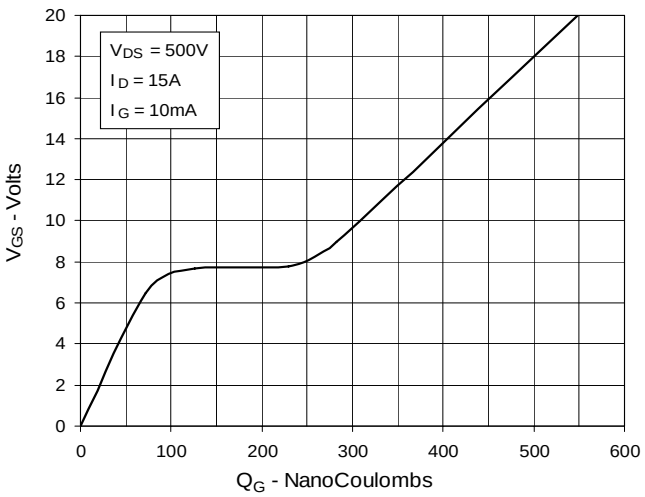

Fig. 11. Capacitance

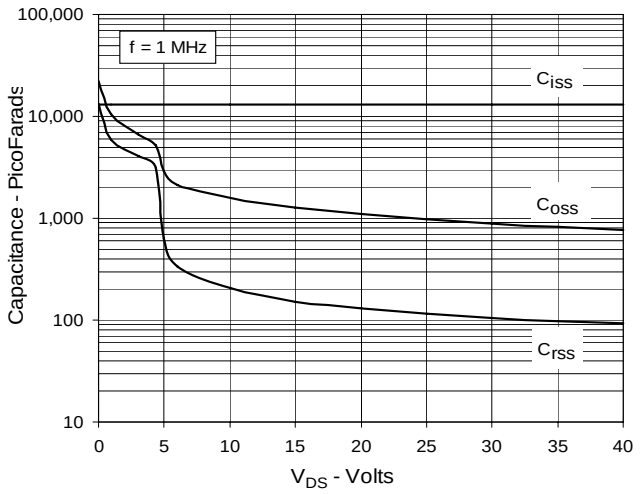

Fig. 12. Forward-Bias Safe Operating Area @ T_C = 25ºC

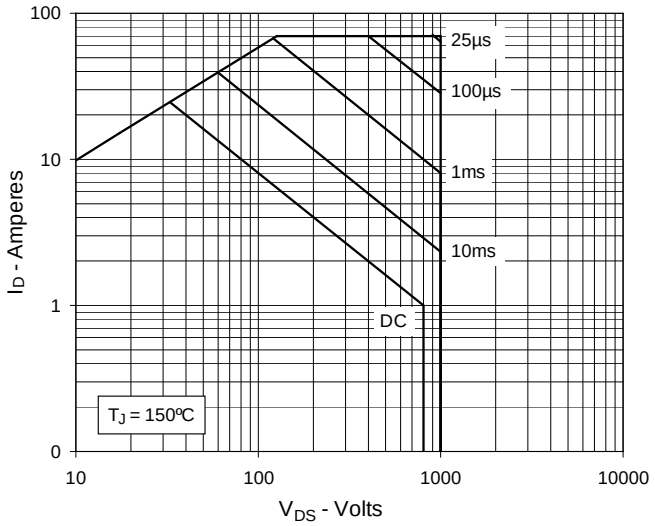

Fig. 13. Forward-Bias Safe Operating Area @ T_C = 90ºC

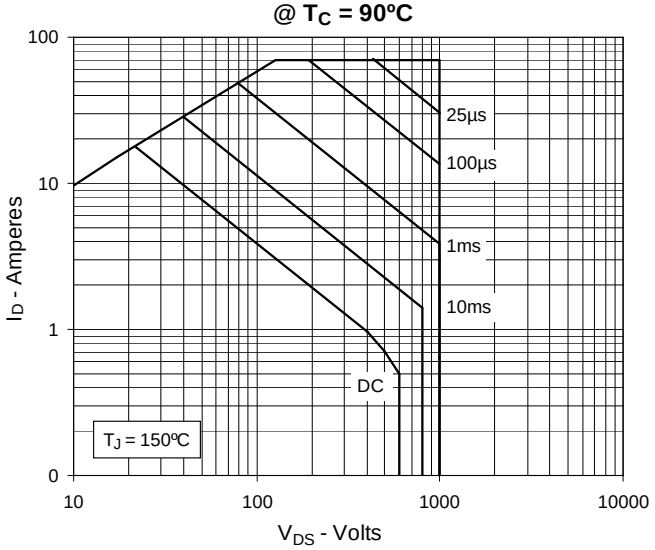

Fig. 14. Maximum Transient Thermal Resistance