



Power MOSFETs with Extended FBSOA

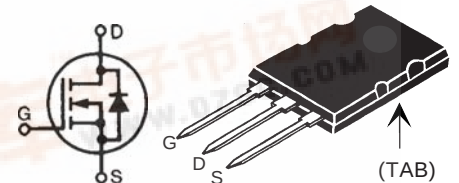
IXTB 30N100L IXTN 30N100L

N-Channel Enhancement Mode
Avalanche Rated

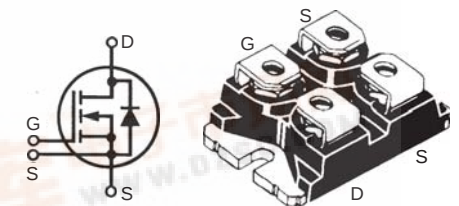
$$\begin{aligned} V_{DSS} &= 1000 \text{ V} \\ I_{D25} &= 30 \text{ A} \\ R_{DS(on)} &\leq 0.45 \Omega \end{aligned}$$

Symbol	Test Conditions	Maximum Ratings		
		IXTB	IXTN	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	1000	1000	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	1000	1000	V
V_{GS}	Continuous	± 30	± 30	V
V_{GSM}	Transient	± 40	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	30	30	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse width limited by T_{JM}	70	70	A
I_{AR}	$T_C = 25^\circ\text{C}$	30	30	A
E_{AR}	$T_C = 25^\circ\text{C}$	80	80	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	2.0	2.0	J
P_D	$T_C = 25^\circ\text{C}$	800	800	W
T_J		-55 ... +150		$^\circ\text{C}$
T_{JM}			150	$^\circ\text{C}$
T_{stg}		-55 ... +150		$^\circ\text{C}$
T_L	1.6 mm (0.063 in) from case for 10 s	300	-	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $t = 1 \text{ min}$	-	2500	V~
	$I_{ISOL} < 1 \text{ mA}$ $t = 1 \text{ s}$	-	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
S = Source
D = Drain
TAB = Drain

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

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

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 1 \text{ mA}$	1000		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	3		5 V
I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0 \text{ V}$			50 μA
	$T_J = 125^\circ\text{C}$			1 mA
	$V_{GS} = 20 \text{ V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1			0.45 Ω

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

Safe Operating Area Specification

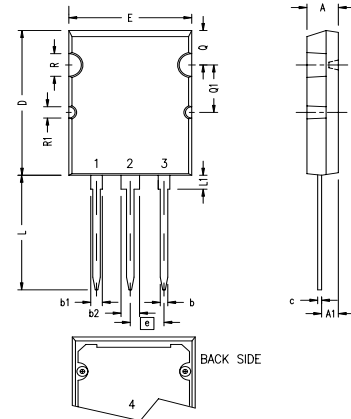
Symbol	Test Conditions	Min.	Typ.	Max.
SOA	$V_{DS} = 600\text{ V}, I_D = 0.5\text{ A}, T_C = 90^\circ\text{C}$	300		W

Source-Drain Diode

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

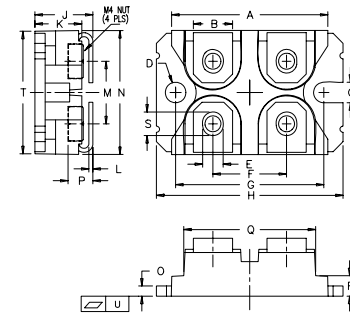
Note 1: Pulse test, $t < 300\ \mu\text{s}$, duty cycle $d < 2\%$

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
$\varnothing R$	.155	.187
$\varnothing R1$	.085	.093

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

Fig. 1. Output Characteristics
@ 25°C

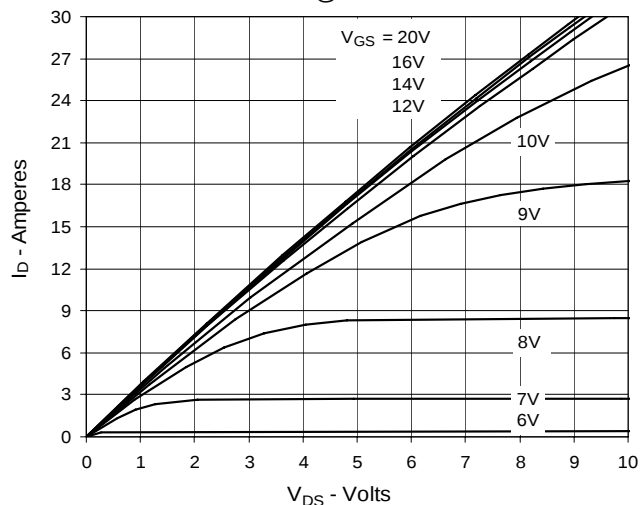


Fig. 2. Extended Output Characteristics
@ 25°C

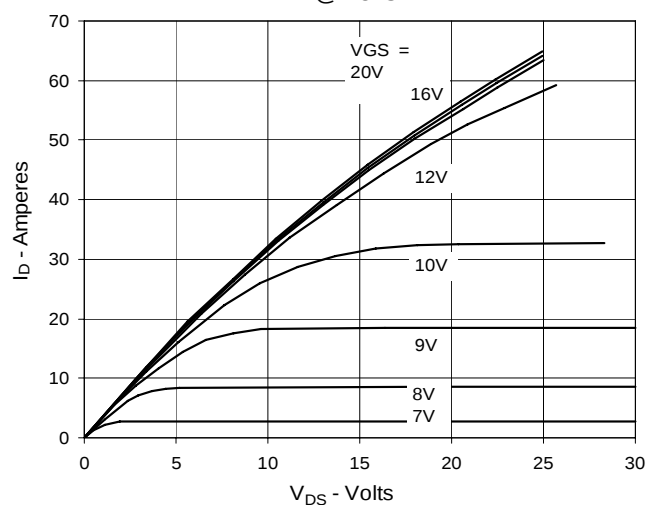


Fig. 3. Output Characteristics
@ 125°C

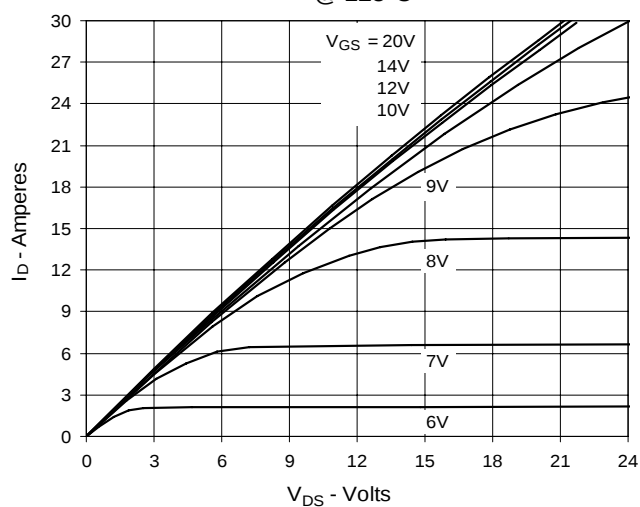


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 32\text{A}$ Value
vs. Junction Temperature

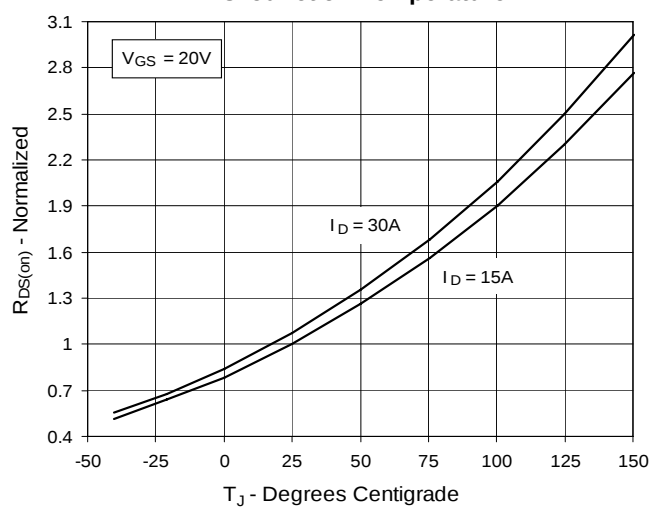


Fig. 5. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value
vs. Drain Current

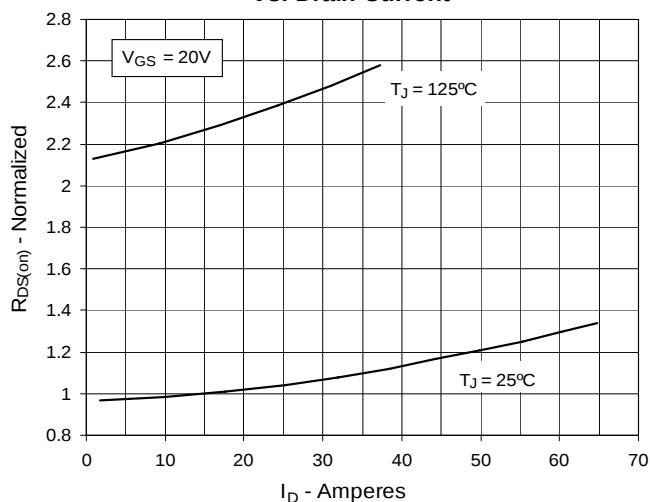


Fig. 6. Maximum Drain Current vs.
Case Temperature

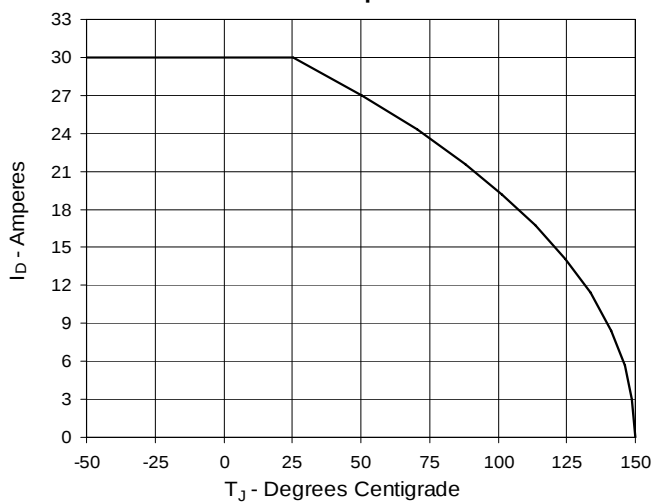


Fig. 7. Input Admittance

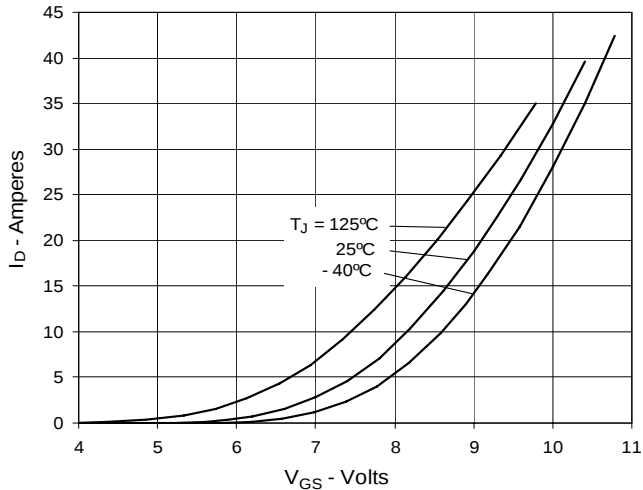


Fig. 8. Transconductance

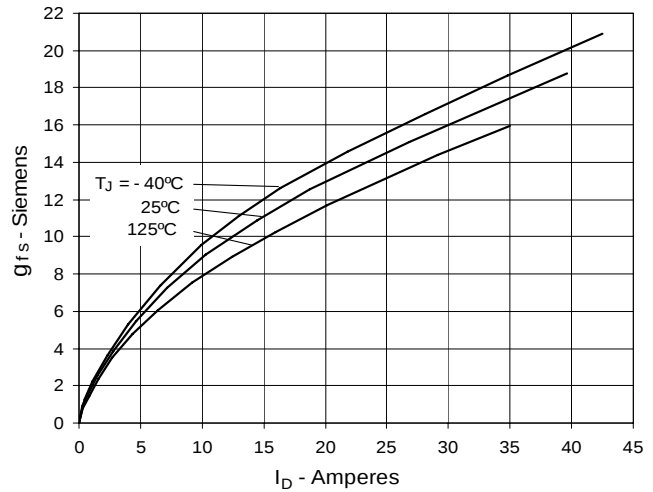


Fig. 9. Forward Voltage Drop of Intrinsic Diode

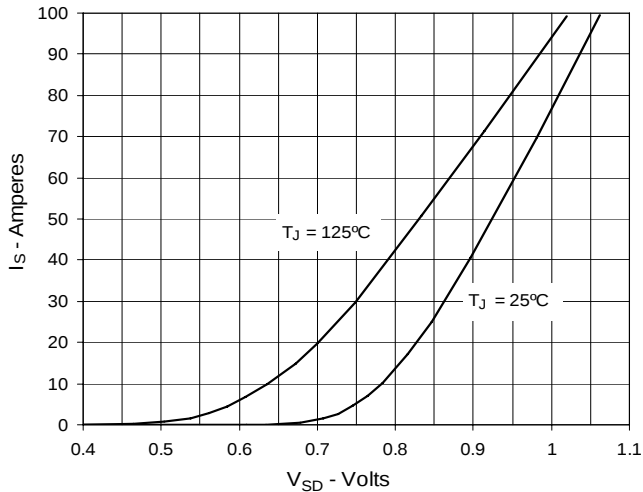


Fig. 10. Gate Charge

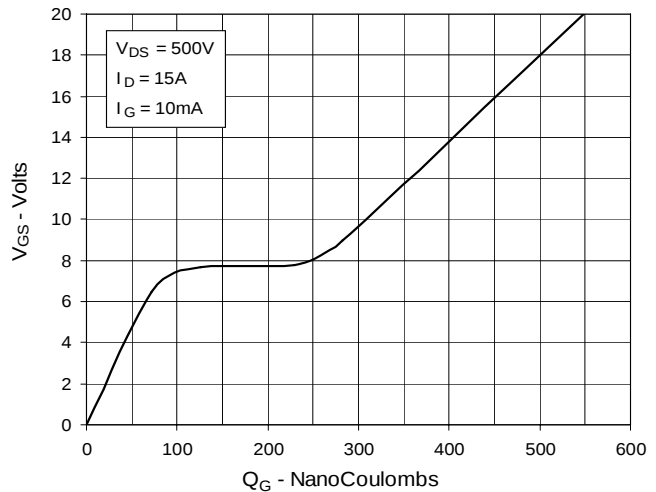


Fig. 11. Capacitance

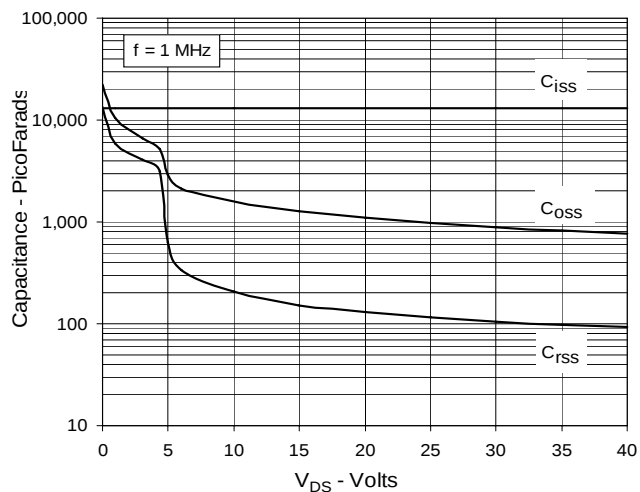


Fig. 12. Forward-Bias Safe Operating Area

@ $T_C = 25^\circ\text{C}$

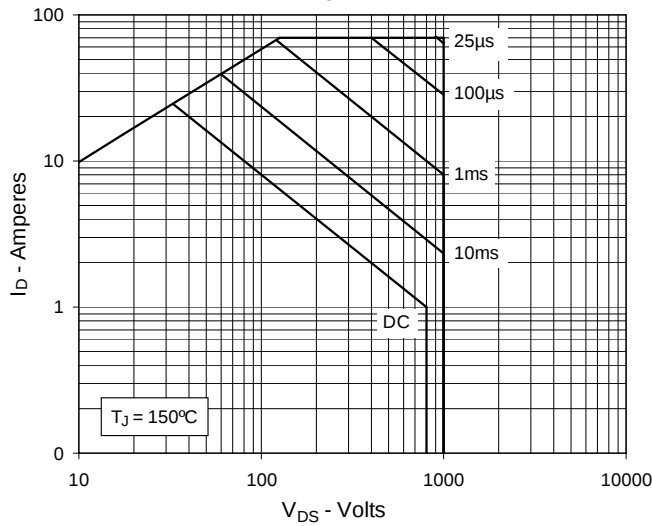


Fig. 13. Forward-Bias Safe Operating Area

@ $T_C = 90^\circ\text{C}$

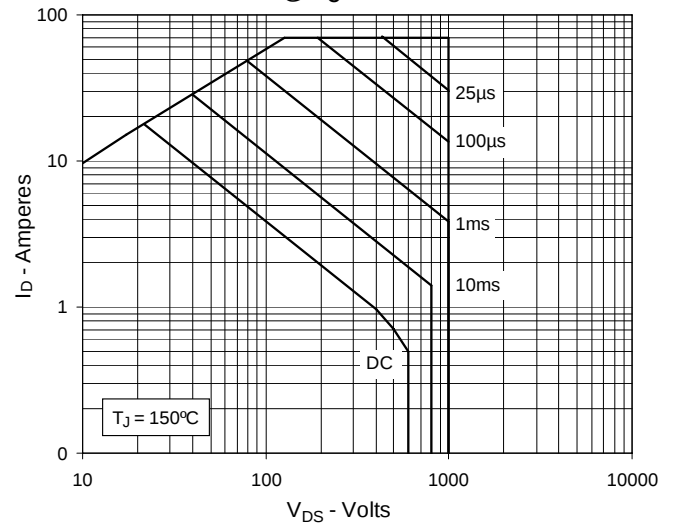


Fig. 14. Maximum Transient Thermal Resistance

