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IXYS

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MegaMOS™ FET

IXTN 15N100

$V_{DSS} = 1000 \text{ V}$

$I_{D25} = 15 \text{ A}$

$R_{DS(on)} = 0.6 \Omega$

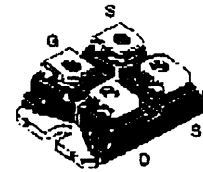
N-Channel Enhancement Mode



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	1000	V
V_{DSM}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{\theta GS} = 10 \text{ k}\Omega$	1000	V
V_{DS}	Continuous	± 20	V
V_{DSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	15	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	60	A
P_D	$T_C = 25^\circ\text{C}$	400	W
T_J		-40 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{vis}		-40 ... +150	$^\circ\text{C}$
V_{ISOL}	50/60 Hz $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$ 2500 $t = 1 \text{ s}$ 3000	V- V-
M_d	Mounting torque Terminal connection torque (M4)	1.5/13 1.5/13	Nm/lb.in. Nm/lb.in.
Weight		30	g

miniBLOC, SOT-227 B

E153432



G = Gate D = Drain

S = Source

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

Features

- International standard package miniBLOC (ISOTOP compatible)
- Isolation voltage 3000 V-
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Low drain-to-case capacitance (< 50 pF)
- Low package inductance (< 10 nH)
- easy to drive and to protect

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 6 \text{ mA}$	1000		V
$V_{DS(on)}$	$V_{DS} = V_{GS}$, $I_D = 20 \text{ mA}$	2		5 V
I_{DSS}	$V_{DS} = \pm 20 \text{ V}$, $V_{GS} = 0$			$\pm 500 \text{ nA}$
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0 \text{ V}$			400 μA 2 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 \cdot I_{DSS}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$			0.6 Ω

Applications

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

Advantages

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

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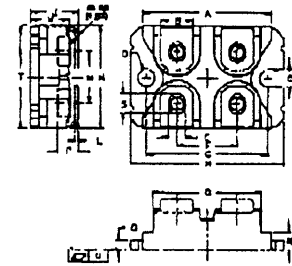


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Symbol	Test Conditions	Characteristic Values ($T_j = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$ pulsed	10	28	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		6000	pF
C_{oss}			600	pF
C_{rss}			150	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{D25}, I_D = 0.5 I_{D25}$ $R_\theta = 1\ \Omega$, (External)			100 ns
t_r				110 ns
$t_{d(off)}$				220 ns
t_f				105 ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{D25}, I_D = 0.5 I_{D25}$		180	280 nC
Q_{gs}			45	65 nC
Q_{gd}			80	150 nC
$R_{th(j-c)}$			0.31	K/W
$R_{th(c-k)}$		0.05		K/W

Symbol	Test Conditions	Characteristic Values ($T_j = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_s	$V_{GS} = 0\text{ V}$			15 A
I_{DM}	Repetitive; pulse width limited by T_{JM}			60 A
V_{SD}	$I_C = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.5 V
t_{tr}	$I_C = I_S, \frac{dI_C}{dt} = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$	1000		ns

miniBLOC, SOT-227 B



M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.5	31.7	1.241	1.249
B	7.8	8.2	0.307	0.323
C	4.0	-	0.158	-
D	4.1	4.3	0.162	0.169
E	4.1	4.3	0.162	0.169
F	14.9	15.1	0.587	0.595
G	30.1	30.3	1.186	1.193
H	38.0	38.2	1.497	1.505
J	11.8	12.2	0.465	0.481
K	8.9	9.7	0.351	0.382
L	0.75	0.85	0.030	0.033
M	12.6	12.8	0.496	0.504
N	25.2	25.4	0.993	1.001
Q	1.95	2.05	0.077	0.081
P	-	5.0	-	0.197

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IXYS MOSFETS and IGBTs are covered by one or more of the following U.S. patents: 4,836,592 4,881,108 5,017,508 5,048,861 5,187,117 5,486,718
4,850,072 4,931,844 5,034,798 5,063,307 5,237,461 5,361,025



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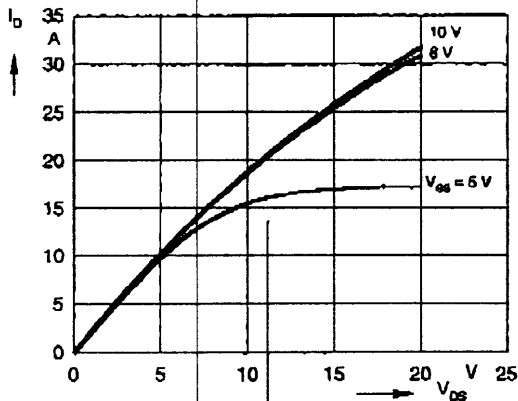


Fig. 1 Typical output characteristics $I_D = f(V_{DS})$

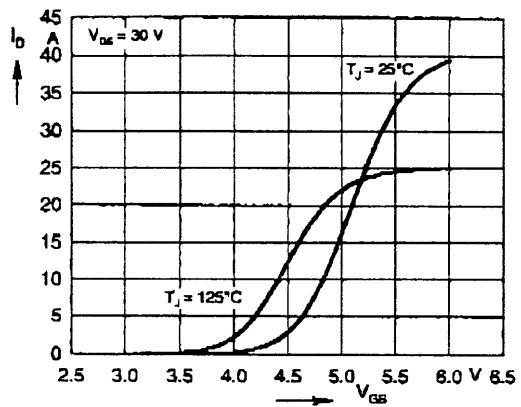


Fig. 2 Typical transfer characteristics $I_D = f(V_{GS})$

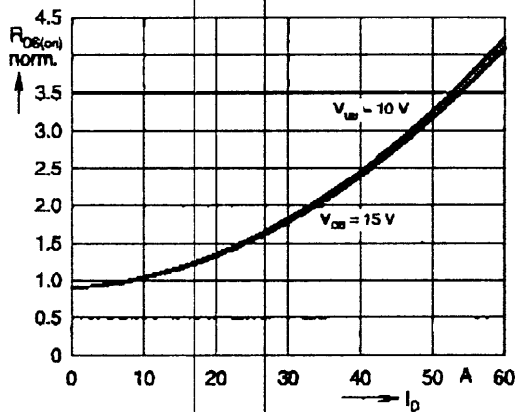


Fig. 3 Typical normalized $R_{DS(on)} = f(I_D)$

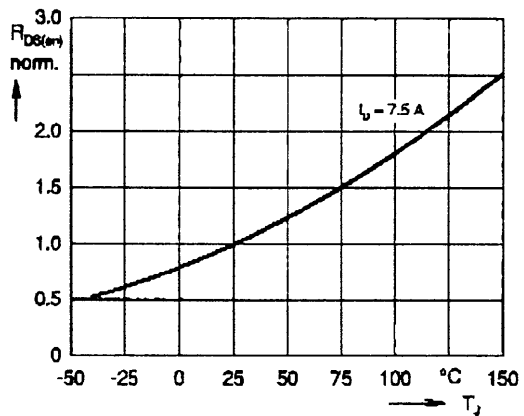


Fig. 4 Typical normalized $R_{DS(on)} = f(T_J)$

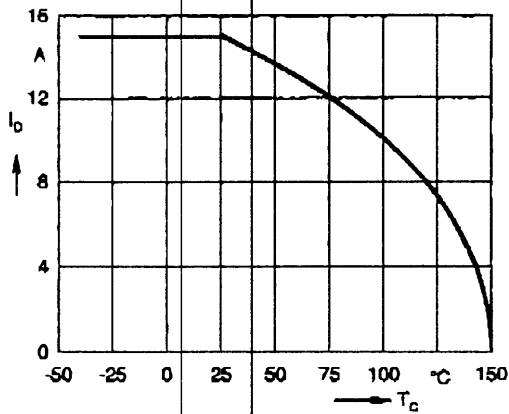


Fig. 5 Continuous drain current $I_D = f(T_C)$

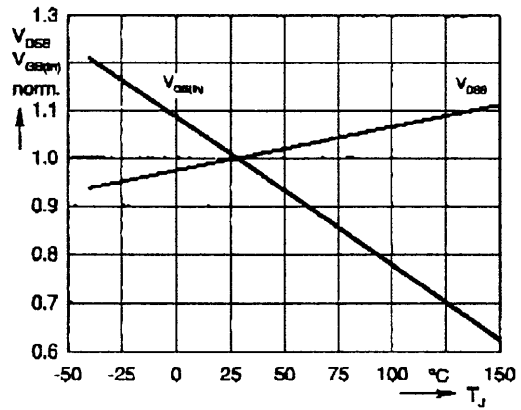


Fig. 6 Typical normalized $V_{DS} = f(T_J)$, $V_{DS(EN)} = f(T_J)$

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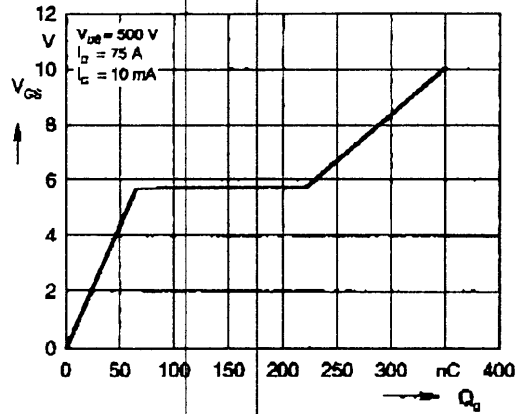


Fig. 7 Typical turn-on gate charge characteristics

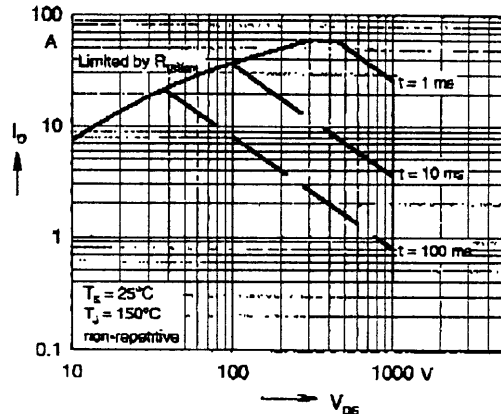


Fig. 8 Forward Safe Operating Area, $I_D = f(V_{DS})$

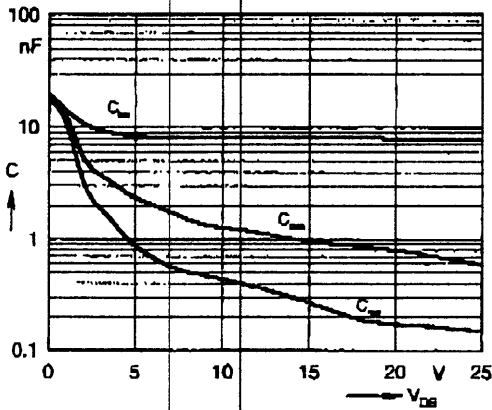


Fig. 9 Typical capacitances $C = f(V_{DS})$, $f = 1 \text{ MHz}$

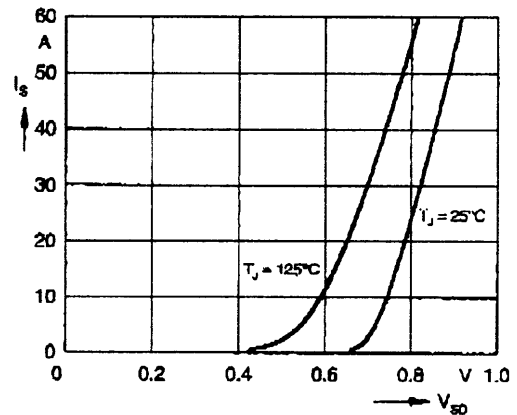


Fig. 10 Typical forward characteristics of reverse diode, $I_S = f(V_{SD})$

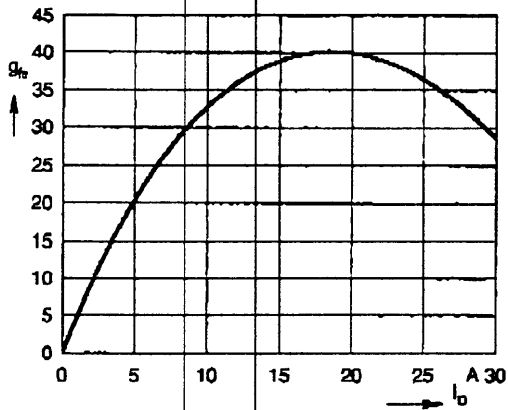


Fig. 11 Typical transconductance $g_m = f(I_D)$

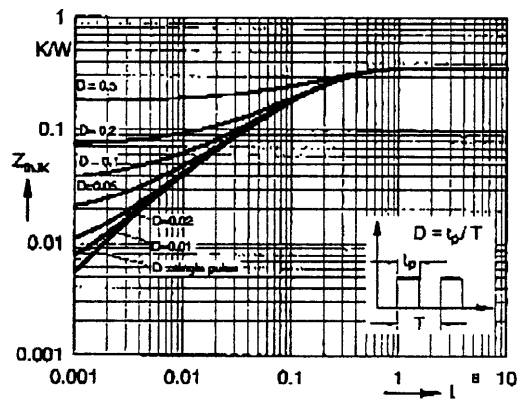


Fig. 12 Transient thermal resistance $Z_{\theta(j-c)} = f(t_p)$

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