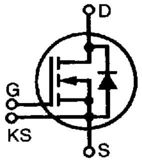
IXYS

MegaMOS™FET

IXTN79N20

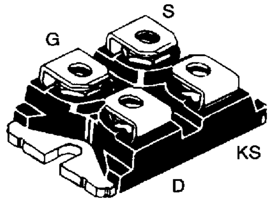
V_{DSS} = 200 V
I_{D25} = 85 A
$R_{DS(on)}$ = 25 mΩ

N-Channel Enhancement Mode



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	200	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 10 kΩ	200	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	85	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	340	A
P_D	T_C = 25°C	400	W
T_J		-40 ... +150	°C
T_{JM}		150	°C
T_{stg}		-40 ... +150	°C
V_{ISOL}	50/60 Hz 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 (M4)	1.5/13	Nm/lb.in.
Weight		30	g

miniBLOC, SOT-227 B



G = Gate, D = Drain,
S = Source, KS = 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°C, unless otherwise specified) min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 1 mA	200			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 20 mA	2		4	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0			±500	nA
I_{DSS}	V_{DS} = 0.8 • V_{DSS} T_J = 25°C			400	μA
	V_{GS} = 0 V T_J = 125°C			2	mA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 0.5 • I_{D25} Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			0.025	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

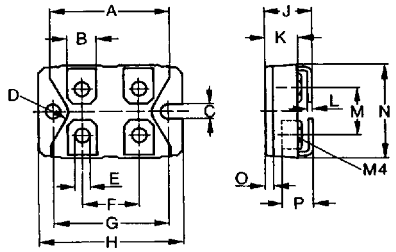
IXYS reserves the right to change limits, test conditions and dimensions.

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
g_{fs}	V_{DS} = 10 V; I_D = 0.5 • I_{D25}, pulsed	47	58		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		9		nF
C_{oss}			1.6		nF
C_{rss}			0.6		nF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 I_{D25}			70	ns
t_r	R_G = 1 Ω, (External)			80	ns
$t_{d(off)}$				200	ns
t_f				100	ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 I_{D25}		380	450	nC
Q_{gs}			70	110	nC
Q_{gd}			190	230	nC
R_{thJC}				0.31	K/W
R_{thCK}			0.05		K/W

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
I_S	V_{GS} = 0			85	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			340	A
V_{SD}	$I_F = I_S$, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			1.5	V
t_{rr}	$I_F = I_S$, -di/dt = 100 A/µs, V_R = 100 V		400		ns

miniBLOC, SOT 227-B



M4 screws (4x) supplied

Dim	Millimeter Min	Max	Inches 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	9.1	0.351	0 359
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
O	1 95	2.05	0 077	0.081
P	-	5.0	-	0 197

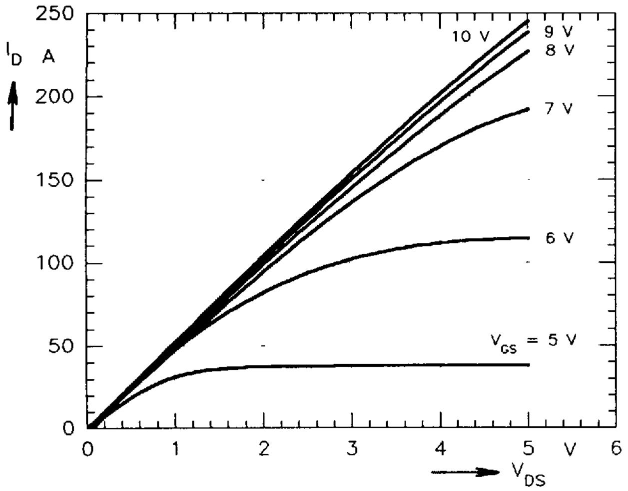


Fig. 1 Typ. output characteristics, $I_D = f(V_{DS})$

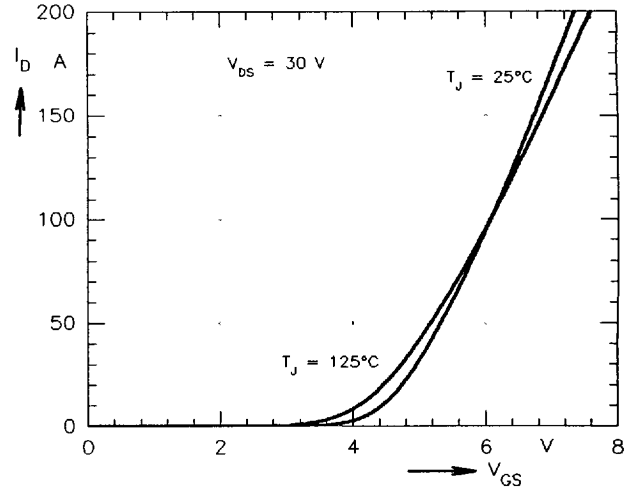


Fig. 2 Typ. transfer characteristics, $I_D = f(V_{GS})$

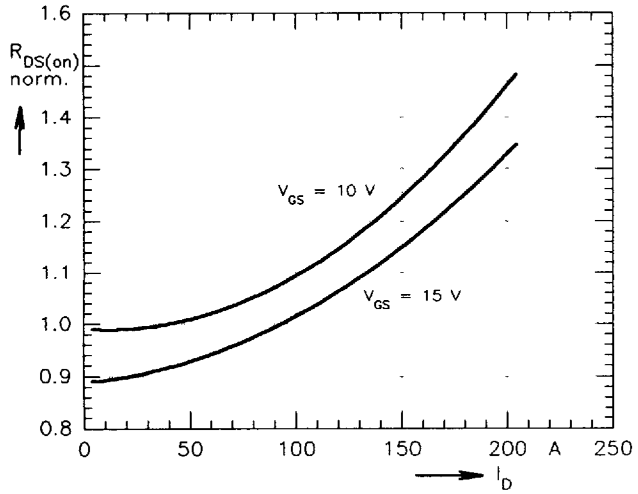


Fig. 3 Typ. normalized $R_{DS(on)} = f(I_D)$

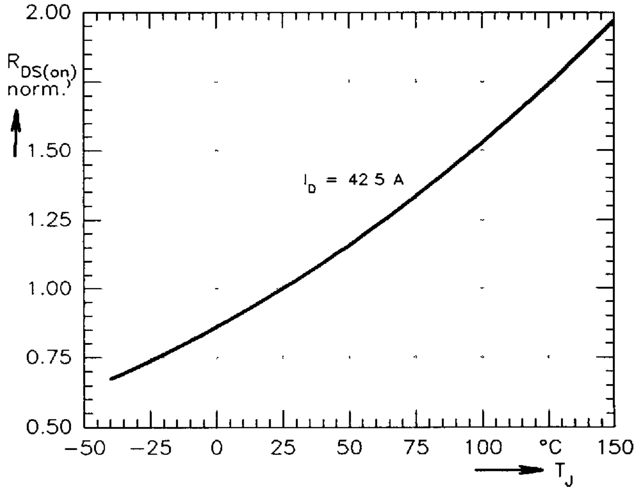


Fig. 4 Typ. normalized $R_{DS(on)} = f(T_J)$

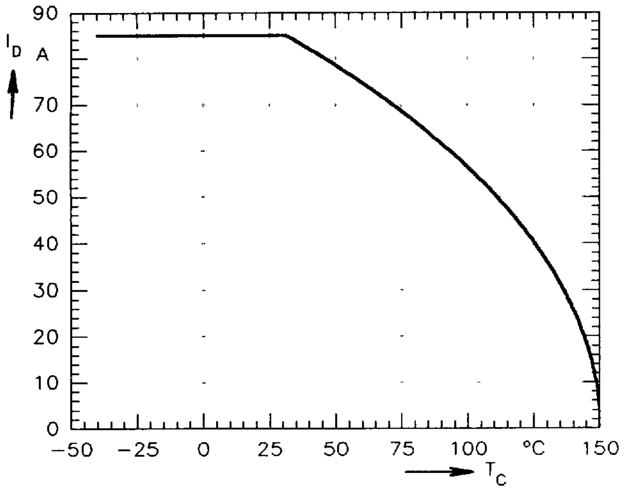


Fig. 5 Continuous drain current $I_D = f(T_C)$

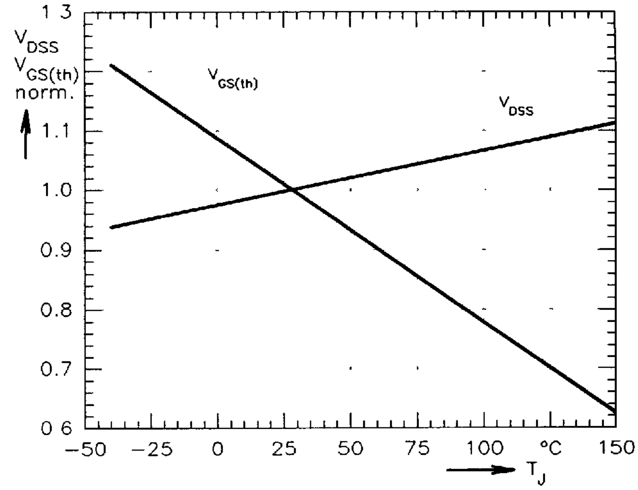


Fig. 6 Typ normalized $V_{DSS} = f(T_J)$, $V_{GS(th)} = f(T_J)$

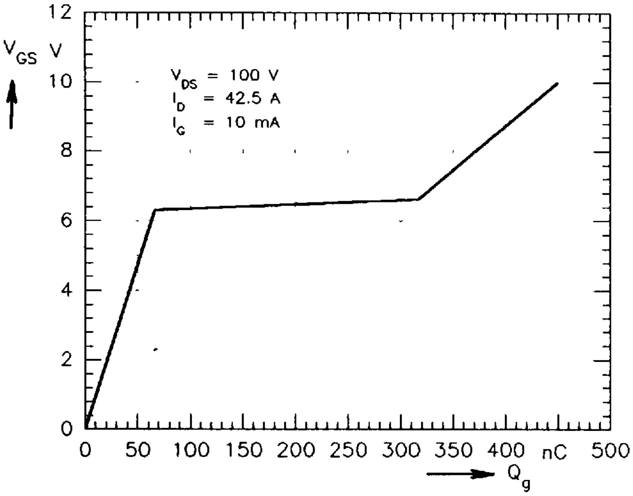


Fig. 7 Typ. turn–on gate charge characteristics, $V_{GS} = f\ (Qg)$

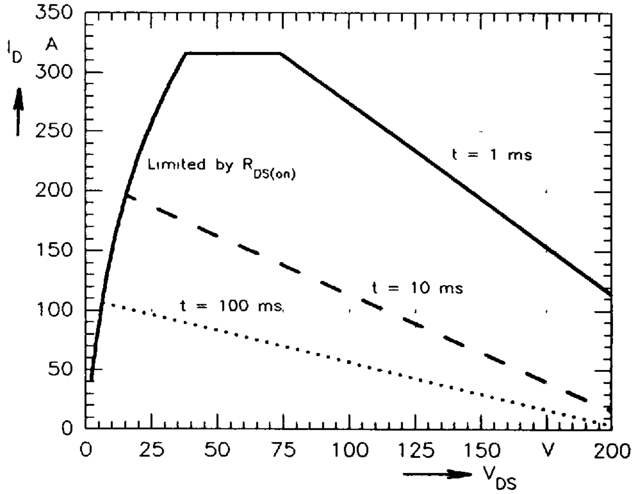


Fig 8 Forward Bias Safe Operating Area, $I_D = f\ (V_{DS})$

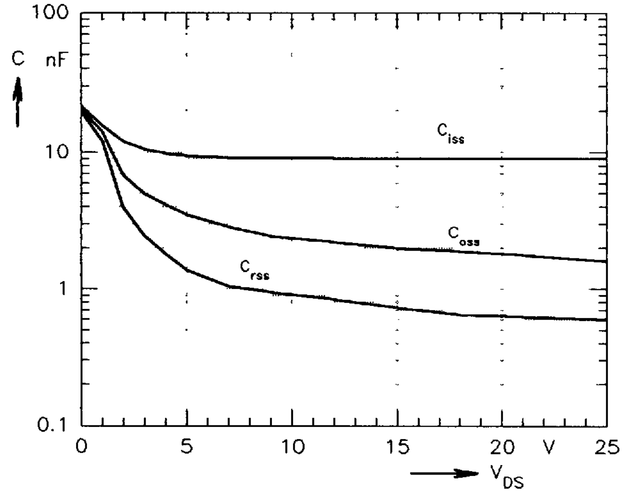


Fig. 9 Typ. capacitances $C = f\ (V_{DS})$, f = 1 MHz

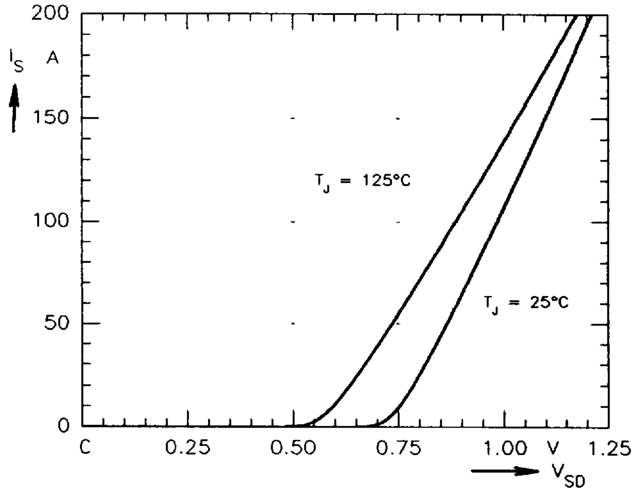


Fig. 10 Typ. forward characteristics of reverse diode $I_S = f\ (V_{SD})$

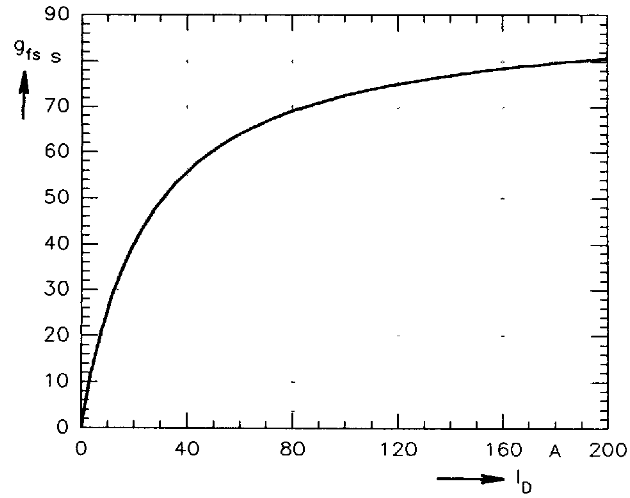


Fig. 11 Typ. transconductance, $g_{fs} = f\ (I_D)$

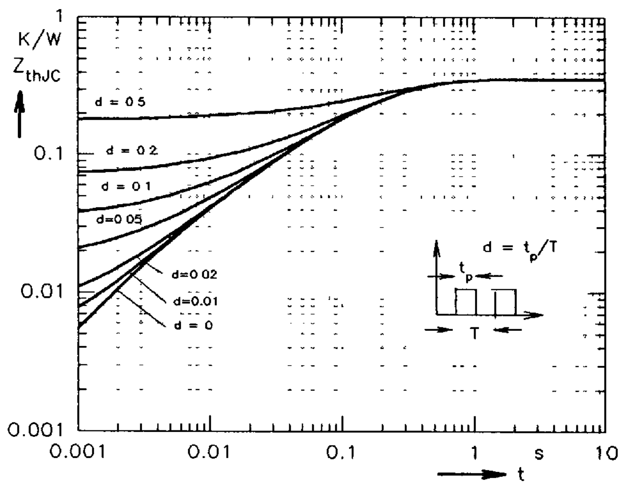


Fig. 12 Transient thermal resistance, $Z_{thJC} = f\ (t)$