◼ IXYS
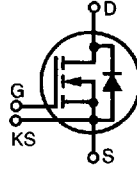
MegaMOS™FET   IXTN15N100

$V_{DSS} = 1000$ V
$I_{D25} = 15$ A
$R_{DS(on)} = 0.6$ Ω

N-Channel Enhancement Mode

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25°C$ to $150°C$	1000	V
V_{DGR}	$T_J = 25°C$ to $150°C$; $R_{GS} = 10$ kΩ	1000	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	$T_C = 25°C$	15	A
I_{DM}	$T_C = 25°C$, pulse width limited by T_{JM}	60	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~
	$I_{ISOL} \leq 1$ 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
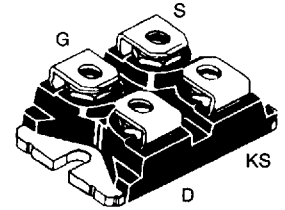
G = Gate,   D = Drain,
S = Source,   KS = Kelvin Source

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, $I_D = 6$ mA	1000		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}	$V_{DS} = 0.8 \cdot V_{DSS}$ $T_J = 25°C$			400 μA
	$V_{GS} = 0$ V $T_J = 125°C$			2 mA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = 0.5 \cdot I_{D25}$ Pulse test, t ≤ 300 μs, duty cycle d ≤ 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

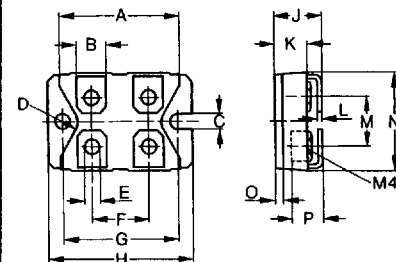- Easy to mount with 2 screws
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25°C$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10$ V; $I_D = 0.5 \cdot I_{D25}$, pulsed	15	28	S
C_{iss}			8	nF
C_{oss}	$V_{GS} = 0$ V, $V_{DS} = 25$ V, f = 1 MHz		0.6	nF
C_{rss}			0.15	nF
$t_{d(on)}$				100	ns
t_r	$V_{GS} = 10$ V, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5$ I_{D25}			110	ns
$t_{d(off)}$	$R_G = 1$ Ω, (External)			220	ns
t_f				105	ns
$Q_{g(on)}$			180	280	nC
Q_{gs}	$V_{GS} = 10$ V, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5$ I_{D25}		45	65	nC
Q_{gd}			80	150	nC
R_{thJC}				0.31	K/W
R_{thCK}			0.05		K/W

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	9.1	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

Source-Drain Diode

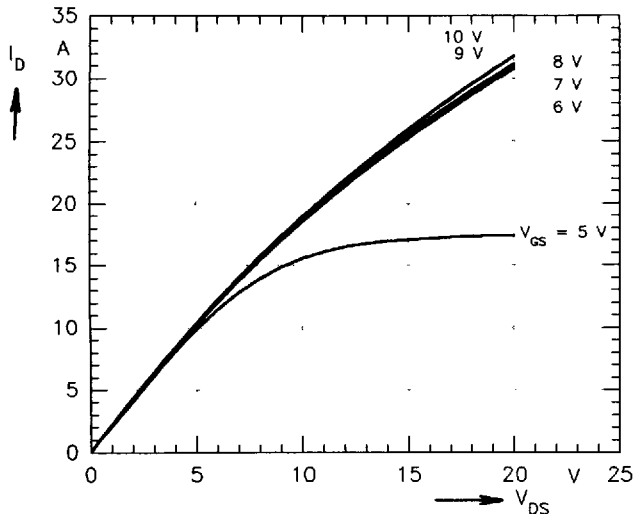| Symbol	Test Conditions	Characteristic Values ($T_J = 25°C$, unless otherwise specified)		
		min.	typ.	max.
I_S	$V_{GS} = 0$			15	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			60	A
V_{SD}	$I_F = I_S$, $V_{GS} = 0$ V, Pulse test, t $\leq$ 300 μs, duty cycle d $\leq$ 2 %			1.5	V
t_{rr}	$I_F = I_S$, -di/dt = 100 A/μs, $V_R = 100$ V		1000		ns

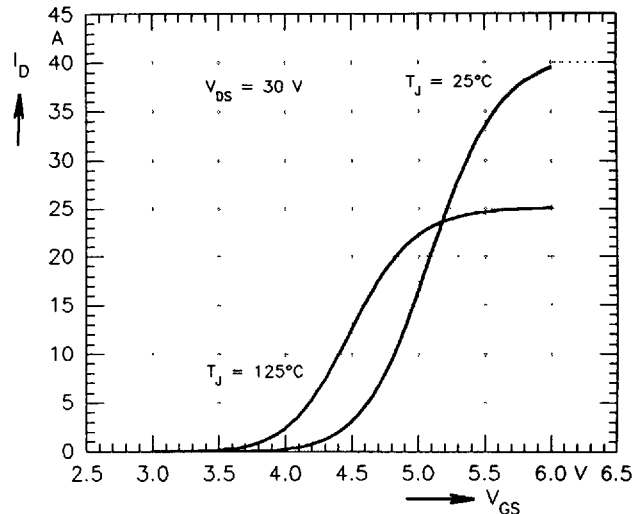Fig. 1 Typ. output characteristics, $I_D = f(V_{DS})$

Fig. 2 Typ. transfer characteristics, $I_D = f(V_{GS})$
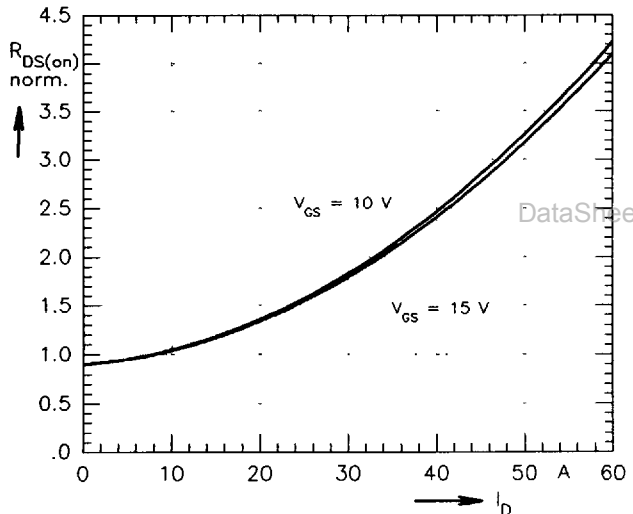
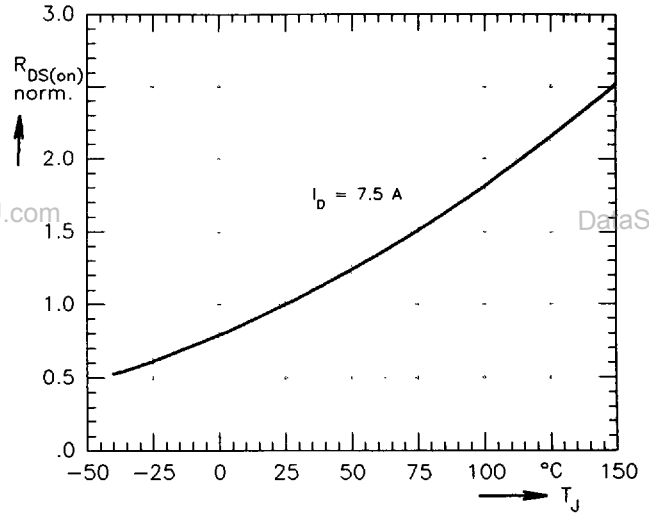Fig. 3 Typ. normalized $R_{DS(on)} = f(I_D)$
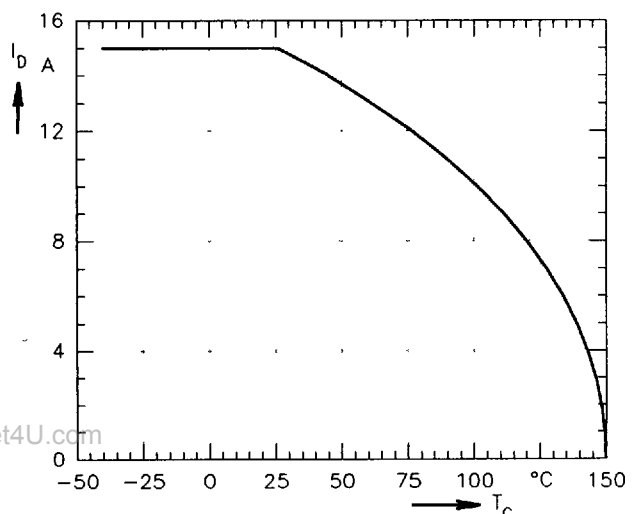
Fig. 4 Typ. normalized $R_{DS(on)}$ $f = (T_J)$

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

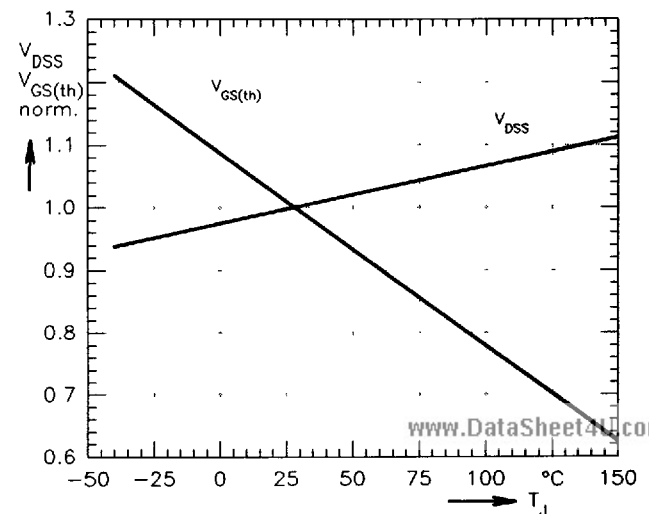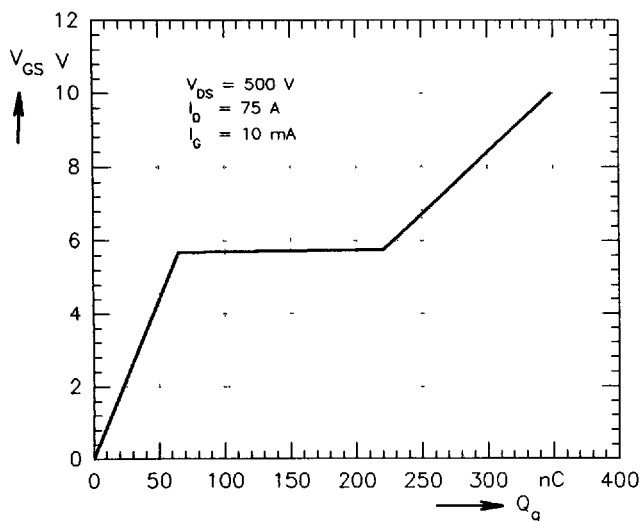Fig. 6 Typ. normalized $V_{DSS} = f(T_J)$, $V_{GS(th)} = f(T_J)$

Fig. 7 Typ. turn-on gate charge characteristics, $V_{GS} = f(Q_g)$
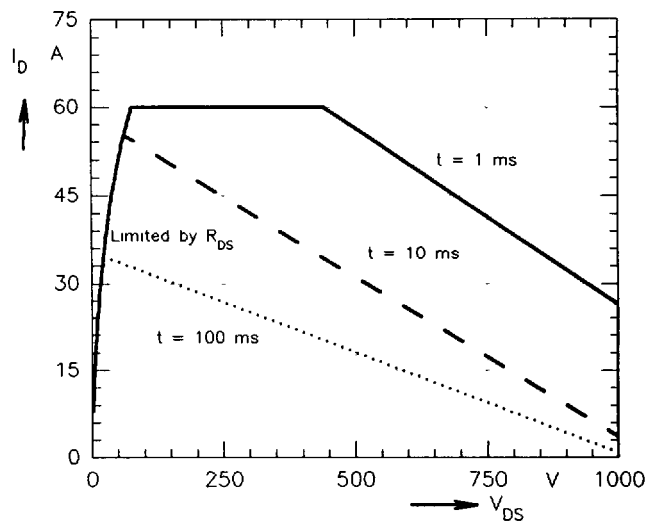
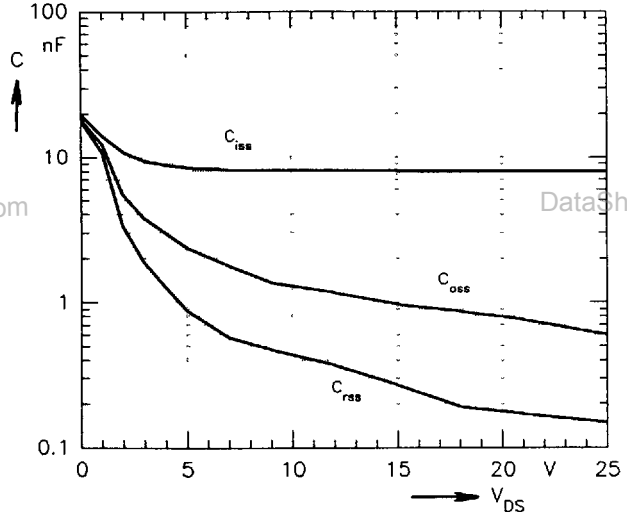
Fig. 8 Forward Bias Safe Operating Area $I_D = f(V_{DS})$

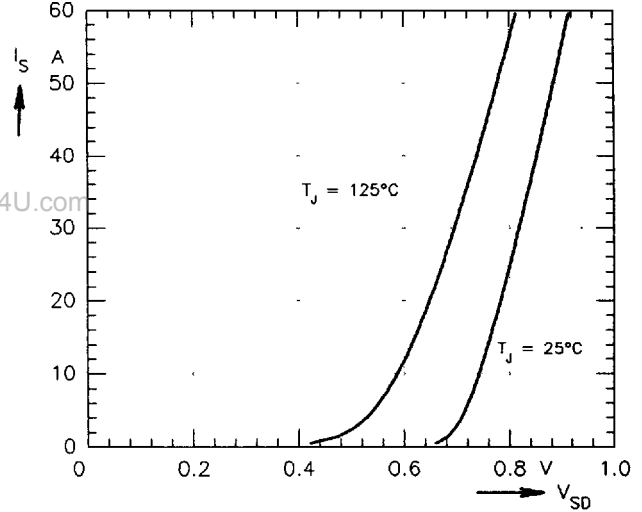Fig. 9 Typ. capacitances $C = f(V_{DS})$, $f = 1$ MHz

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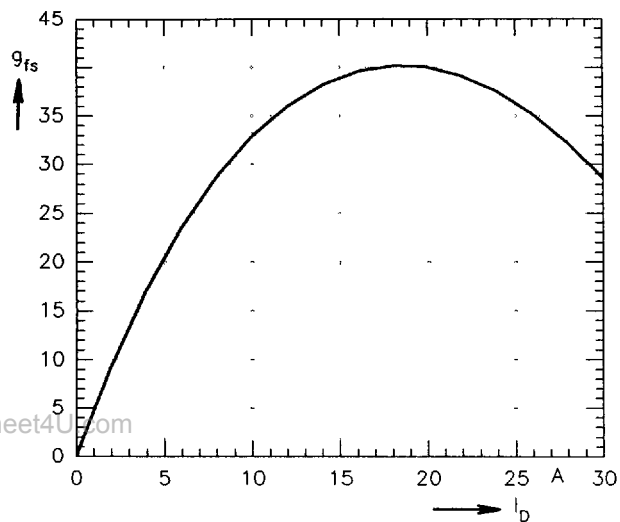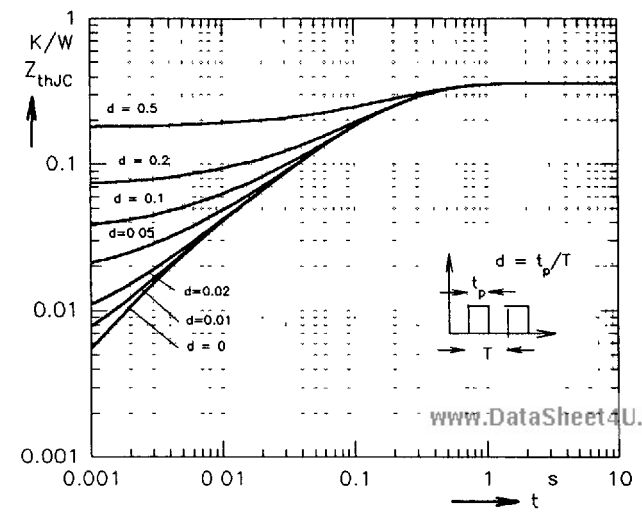

Fig. 11 Typ. transconductance, $g_{fs} = f(I_D)$

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