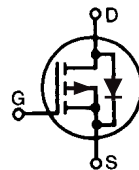


Standard Power MOSFET IXTH 50P085

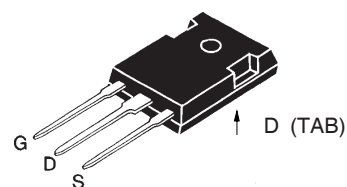
P-Channel Enhancement Mode
Avalanche Rated

$V_{DSS} = -85 \text{ V}$
 $I_{D25} = -50 \text{ A}$
 $R_{DS(on)} = 55 \text{ m}\Omega$



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	-85	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	-85	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	-50	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_J	-200	A
I_{AR}	$T_C = 25^\circ\text{C}$	-50	A
E_{AR}	$T_C = 25^\circ\text{C}$	30	mJ
P_D	$T_C = 25^\circ\text{C}$	300	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
M_d	Mounting torque	1.13/10	Nm/lb.in.
Weight		6	g

TO-247 AD



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

Features

- International standard package JEDEC TO-247 AD
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance (<5 nH)
- easy to drive and to protect

Applications

- High side switching
- Push-pull amplifiers
- DC choppers
- Automatic test equipment

Advantages

- Easy to mount with 1 screw (isolated mounting screw hole)
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = -250 \mu\text{A}$	-85		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250 \mu\text{A}$	-3.0		-5.0 V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$		-25 μA
		$T_J = 125^\circ\text{C}$		-1 mA
$R_{DS(on)}$	$V_{GS} = -10 \text{ V}$, $I_D = 0.5 \cdot I_{D25}$			55 m Ω

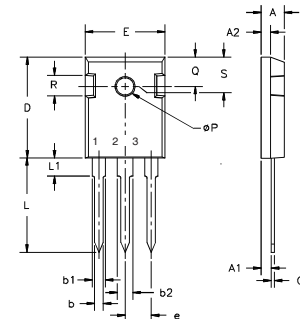
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = -10\text{ V}; I_D = I_{D25}$, pulse test	8	16	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = -25\text{ V}, f = 1\text{ MHz}$		4200	pF
C_{oss}			1720	pF
C_{rss}			750	pF
$t_{d(on)}$	$V_{GS} = -10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 4.7\ \Omega$ (External)		46	ns
t_r			39	ns
$t_{d(off)}$			86	ns
t_f			38	ns
$Q_{g(on)}$	$V_{GS} = -10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		150	nC
Q_{gs}			36	nC
Q_{gd}			70	nC
R_{thJC}			0.42	K/W
R_{thCS}		0.25		K/W

Source-Drain Diode

Characteristic Values
($T_J = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values		
		min.	typ.	max.
I_S	$V_{GS} = 0$			-25 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			-200 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			-3 V
t_{rr}	$I_F = I_S, di/dt = 100\text{ A}/\mu\text{s}, V_R = -50\text{ V}$	180		ns

TO-247 AD Outline



Terminals: 1 - Gate 2 - Drain
3 - Source Tab - Drain

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	.242	BSC

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

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:	4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585
	4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692
	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	

Fig. 1. Output Characteristics @ 25 Deg. C

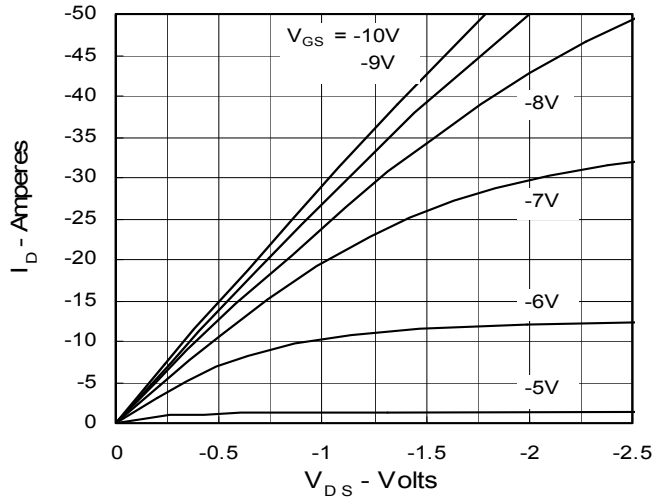


Fig. 2. Extended Output Characteristics @ 25 deg. C

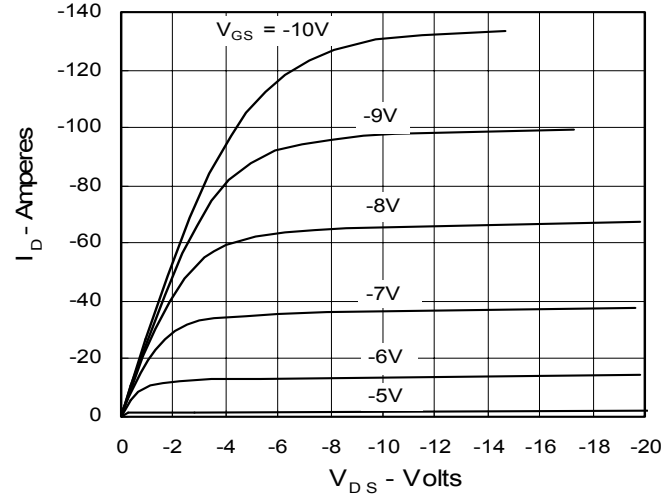


Fig. 3. Output Characteristics @ 125 Deg. C

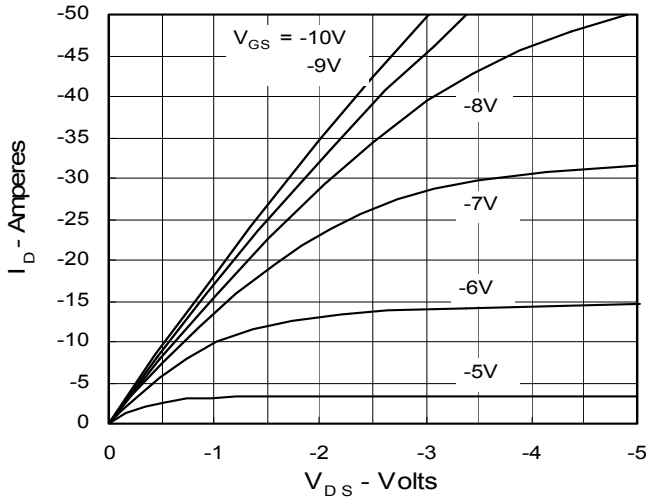


Fig. 4. R_DS(on) Normalized to I_D25 Value vs. Junction Temperature

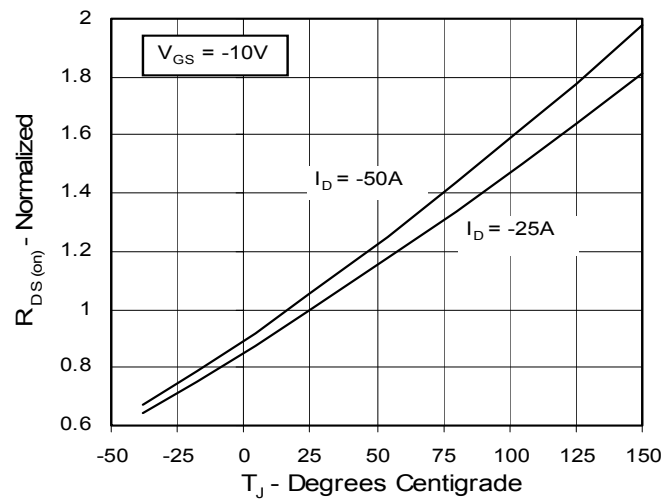


Fig. 5. R_DS(on) Normalized to I_D25 Value vs. I_D

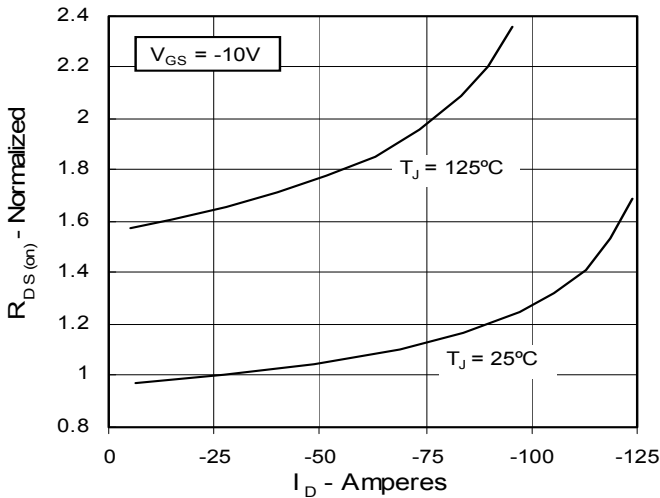


Fig. 6. Drain Current vs. Case Temperature

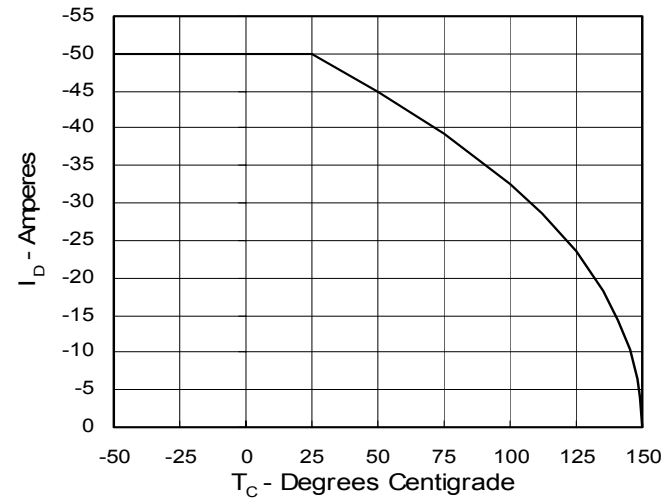
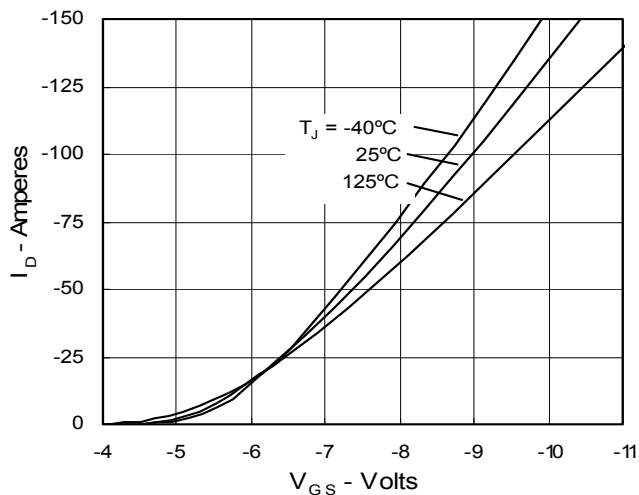
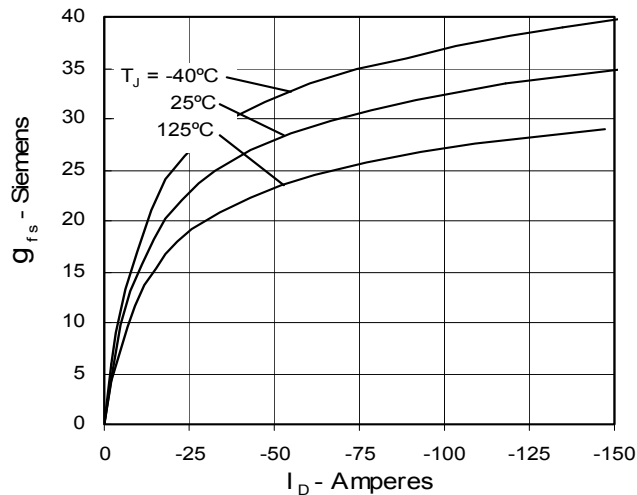
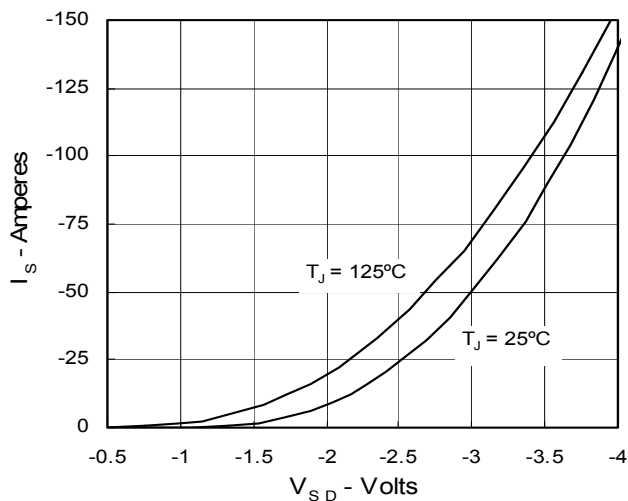
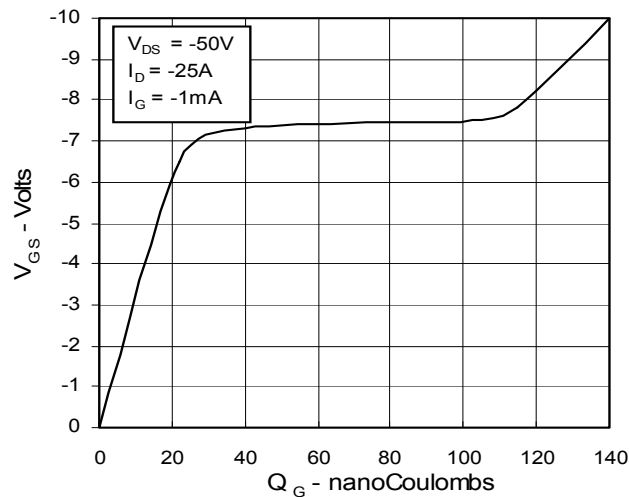
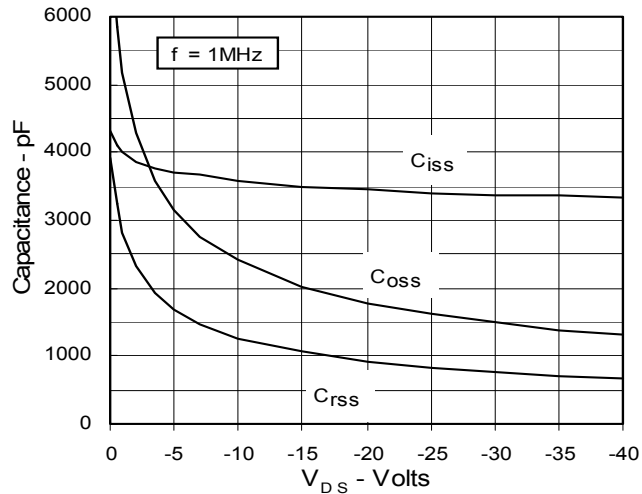


Fig. 7. Input Admittance

Fig. 8. Transconductance

Fig. 9. Source Current vs. Source-To-Drain Voltage

Fig. 10. Gate Charge

Fig. 11. Capacitance

Fig. 12. Maximum Transient Thermal Resistance
