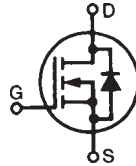
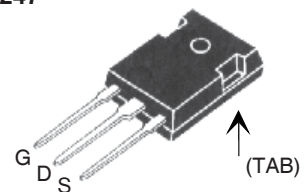


Power MOSFET

IXKH 47N60C

Low $R_{DS(on)}$, High Voltage,
CoolMOS™ Superjunction MOSFET

$V_{DSS} = 600 \text{ V}$
 $I_{D25} = 47 \text{ A}$
 $R_{DS(on)} = 70 \text{ m}\Omega$


TO-247


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

Features

- 3RD generation Superjunction power MOSFET
- High blocking capability
- Low on resistance
- Avalanche rated for unclamped inductive switching (UIS)
- Low thermal resistance due to reduced chip thickness

Applications

- Switched Mode Power Supplies (SMPS)
- Uninterruptible Power Supplies (UPS)
- Power Factor Correction (PFC)
- Welding
- Inductive Heating

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	600	V
V_{GS}	Continuous	± 20	V
I_{D25}	$T_C = 25^\circ\text{C}$	47	A
I_{D100}	$T_C = 100^\circ\text{C}$	30	A
E_{AS}	$I_o = 10\text{A}, T_C = 25^\circ\text{C}$	1800	mJ
P_D	$T_C = 25^\circ\text{C}$	415	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +125	$^\circ\text{C}$
T_L	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
Weight		6	g
M_D	Mounting torque	1.13/10	Nm/lb-in

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = I_{D100}$, Note 1		60	70 $\text{m}\Omega$
	$V_{GS} = 10 \text{ V}, I_D = I_{D100}$, Note 1, $T_J = 125^\circ\text{C}$		150	$\text{m}\Omega$
$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 2 \text{ mA}$	2	3	4 V
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$		$T_J = 25^\circ\text{C}$	25 μA
			$T_J = 150^\circ\text{C}$	250 μA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}, V_{DS} = 0$			$\pm 100 \text{ nA}$

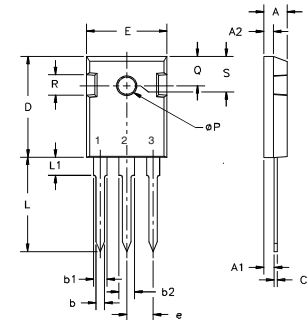
CoolMos is a trademark of Infineon Technology.

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{FS}	$V_{DS} = 10\text{ V}, I_D = I_{D100}$		40	S
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 350\text{ V}, I_D = 40\text{ A}$		252	320 nC
Q_{gs}			24	nC
Q_{gd}			121	nC
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 380\text{ V}$ $I_D = 47\text{ A}, R_G = 4.7\ \Omega$		20	ns
t_r			27	ns
$t_{d(off)}$			111	ns
t_f			10	ns
R_{thJC}				0.3 K/W
R_{thCH}		0.25		K/W

Reverse Correction		Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
Symbol	Test Conditions	min.	typ.	max.
V_{SD}	$I_F = I_{D100}, V_{GS} = 0\text{ V}$ Note 1		1.0	1.2 V

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

TO-247 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	4,835,592	4,881,106	5,017,508	5,049,961	5,187,117	5,486,715	6,306,728B1	6,259,123B1
	4,850,072	4,931,844	5,034,796	5,063,307	5,237,481	5,381,025	6,404,065B1	6,162,665

Fig. 1. Output Characteristics @ 25 Deg. C

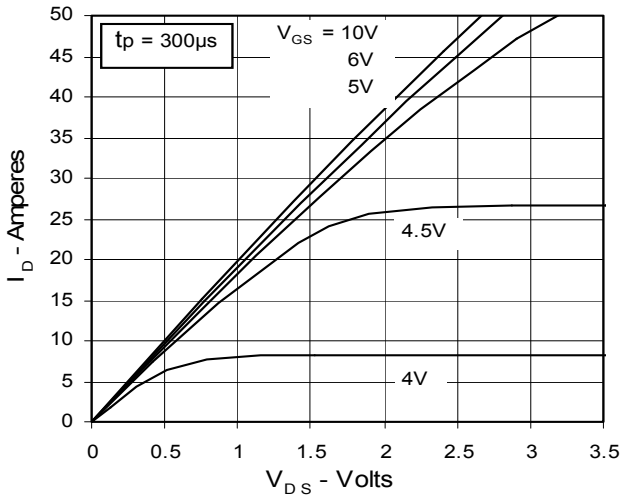


Fig. 2. Extended Output Characteristics @ 25 deg. C

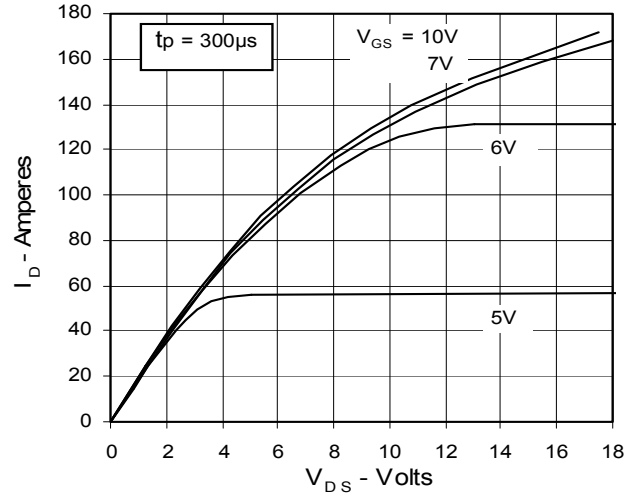


Fig. 3. Output Characteristics @ 125 Deg. C

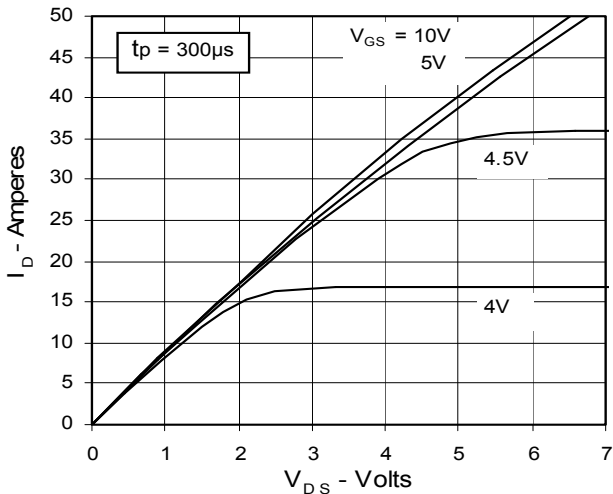


Fig. 4. $R_{DS(on)}$ Normalized to I_{D100} Value vs. Junction Temperature

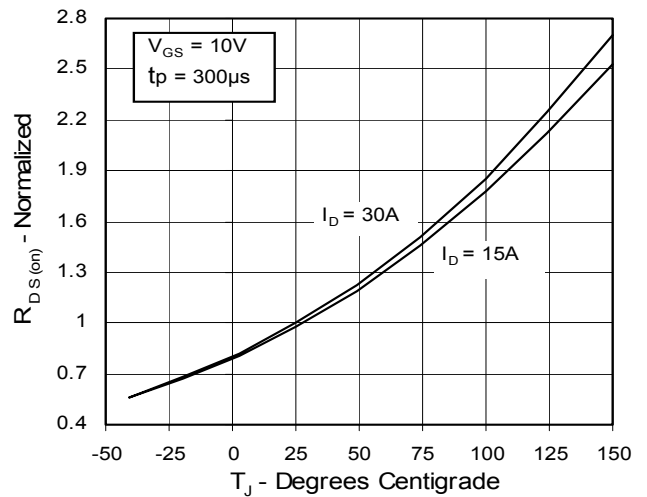


Fig. 5. $R_{DS(on)}$ Normalized to I_{D100} Value vs. I_D

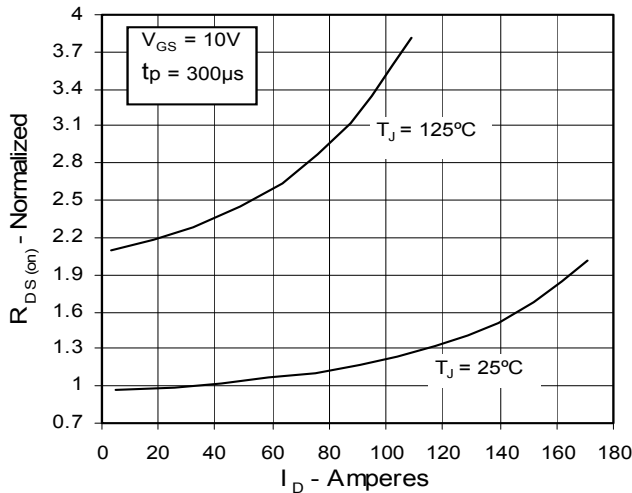


Fig. 6. Drain Current vs. Case Temperature

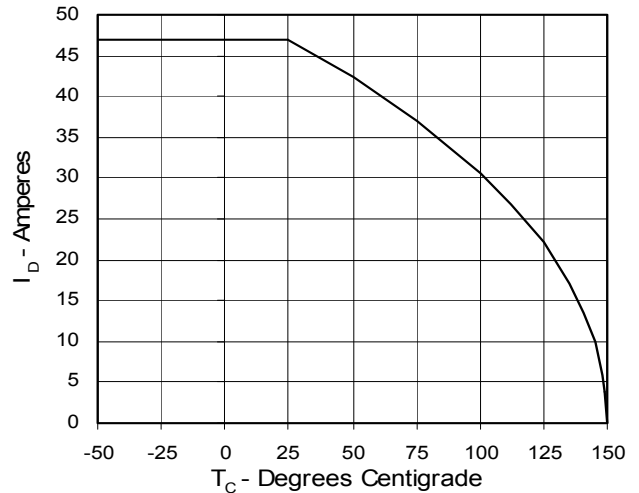


Fig. 7. Input Admittance

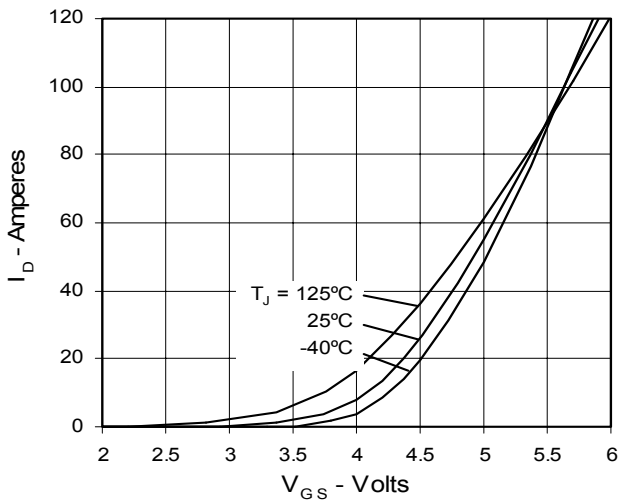


Fig. 8. Transconductance

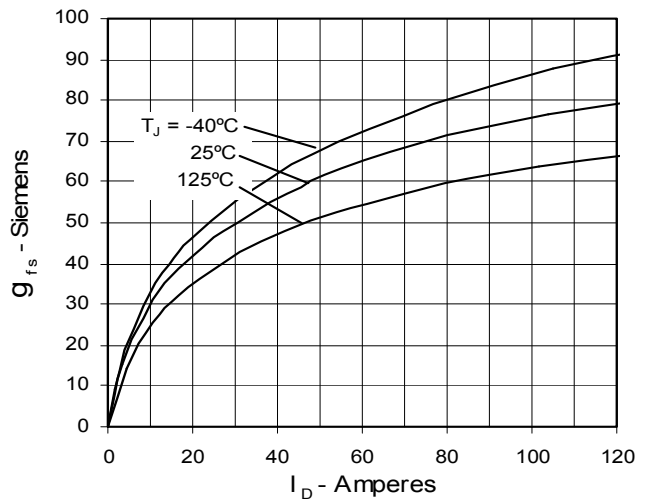


Fig. 9. Source Current vs. Source-To-Drain Voltage

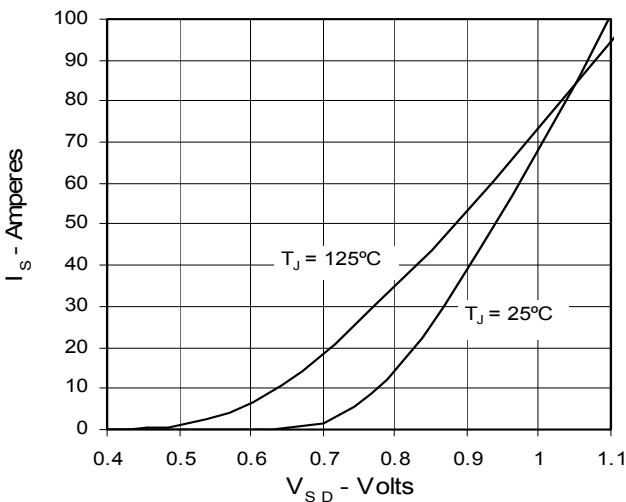


Fig. 10. Gate Charge

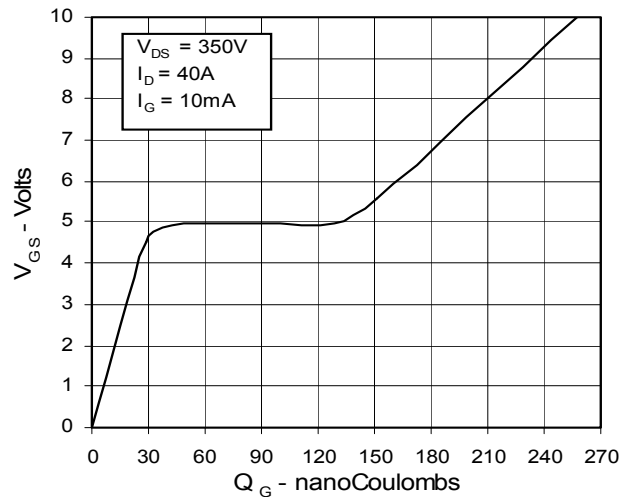


Fig. 11. Capacitance

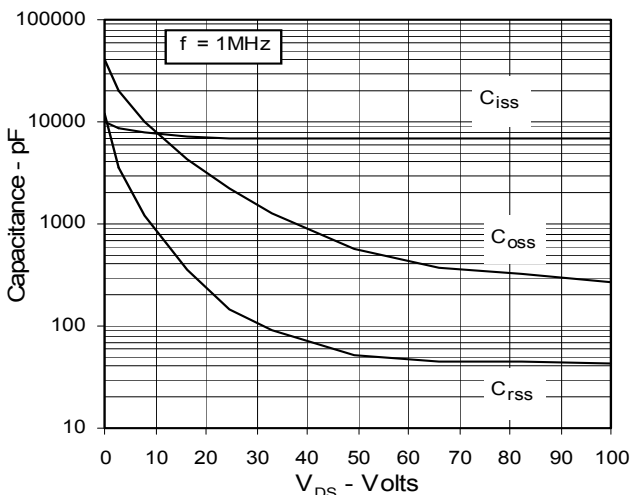
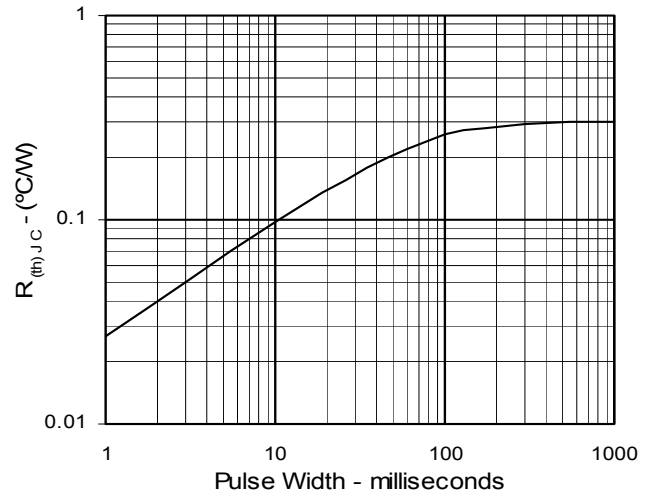


Fig. 12. Maximum Transient Thermal Resistance



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

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	4,850,072	4,931,844	5,034,796	5,063,307	5,237,481	5,381,025	6,404,065B1	6,162,665