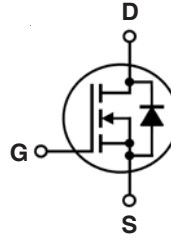


Power MOSFET

IXKK85N60C

CoolMOS™ Superjunction
MOSFET

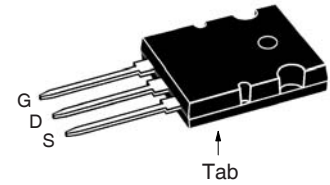
Low $R_{DS(on)}$, High Voltage



$V_{DSS} = 600V$
 $I_{D25} = 85A$
 $R_{DS(on)} \leq 36m\Omega$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ C$	600	V
V_{GSS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ C$	85	A
I_{D100}	$T_C = 100^\circ C$	55	A
I_{AS}	$T_C = 25^\circ C, I_D = 10A$	1.8	J
E_{AS}	$T_C = 25^\circ C, I_D = 20A$	1	mJ
dv/dt	$I_S \leq I_{DM}, V_{DD} \leq V_{DSS}, T_J \leq 150^\circ C$	50	V/ns
T_J		-55 ... +150	$^\circ C$
T_{stg}		-55 ... +150	$^\circ C$
T_L	1.6mm (0.062 in.) from Case for 10s	300	$^\circ C$
T_{SOLD}	Plastic Body for 10s	260	$^\circ C$
M_d	Mounting Torque	1.13/10	Nm/lb.in.
Weight		10	g

TO-264



G = Gate D = Drain
 S = Source Tab = Drain

Features

- 3RD Generation CoolMOS Power MOSFET
 - High Blocking Capability
 - Low on Resistance
 - Avalanche Rated
- Low Thermal Resistance Due to Reduced Chip Thickness

Applications

- Switch-Mode Power-Supplies
- Uninterruptible Power Supplies
- Power Factor Correction
- Welding
- Inductive Heating

Symbol	Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 5.4mA$	2.0		4.0 V
I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 200 nA
I_{DSS}	$V_{DS} = V_{DSS}, V_{GS} = 0V$ $T_J = 125^\circ C$			50 μA 500 μA
$R_{DS(on)}$	$V_{GS} = 10V, I_D = 55A, \text{ Note 1}$		30	36 m Ω

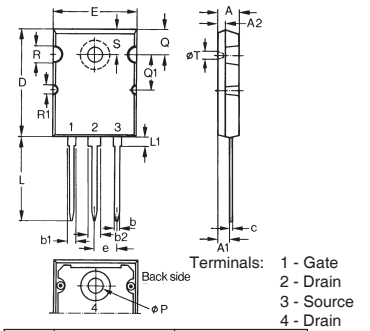
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1\text{MHz}$		13.6	nF
C_{oss}			4400	pF
C_{rss}			290	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 13V, V_{DS} = 380V, I_D = 85A$ $R_G = 1\Omega$ (External)		20	ns
t_r			27	ns
$t_{d(off)}$			110	ns
t_f			10	ns
$Q_{g(on)}$	$V_{GS} = 10V, V_{DS} = 350V, I_D = 85A$		500	nC
Q_{gs}			50	nC
Q_{gd}			240	nC
R_{thJC}				0.18 $^\circ\text{C/W}$
R_{thCH}			0.15	$^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0V$			85 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			250 A
V_{SD}	$I_F = I_S, V_{GS} = 0V$, Note 1			1.2 V
t_{rr}	$I_F = 85A, -di/dt = 200A/\mu\text{s}$ $V_R = 350V, V_{GS} = 0V$		580	ns
Q_{RM}			46	μC
I_{RM}			140	A

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

TO-264 (IXKK) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
c	0.53	0.83	.021	.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	.780	.786
e	5.46 BSC		.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
P	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
T	1.57	1.83	.062	.072

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	7,005,734 B2	7,157,338B2
	4,860,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692	7,063,975 B2	
	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2	7,071,537	

Fig. 1. Output Characteristics @ 25 Deg. C

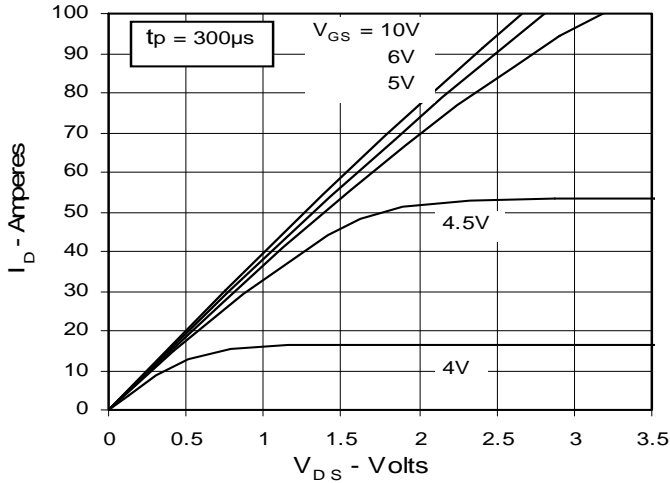


Fig. 2. Extended Output Characteristics @ 25 deg. C

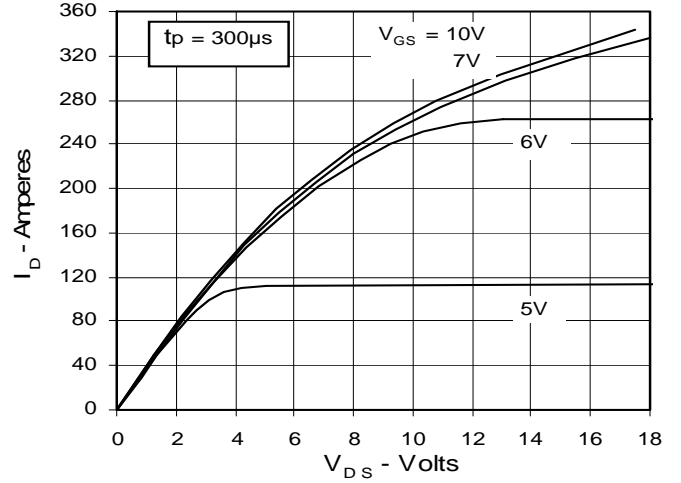


Fig. 3. Output Characteristics @ 125 Deg. C

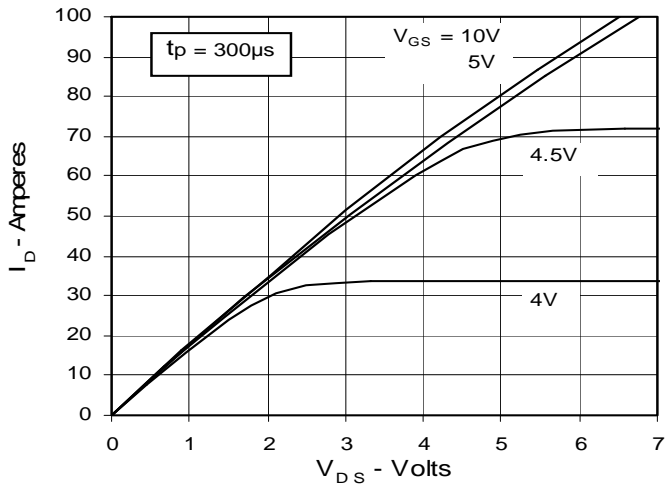


Fig. 4. $R_{DS(on)}$ Normalized to I_{D100} Value vs. Junction Temperature

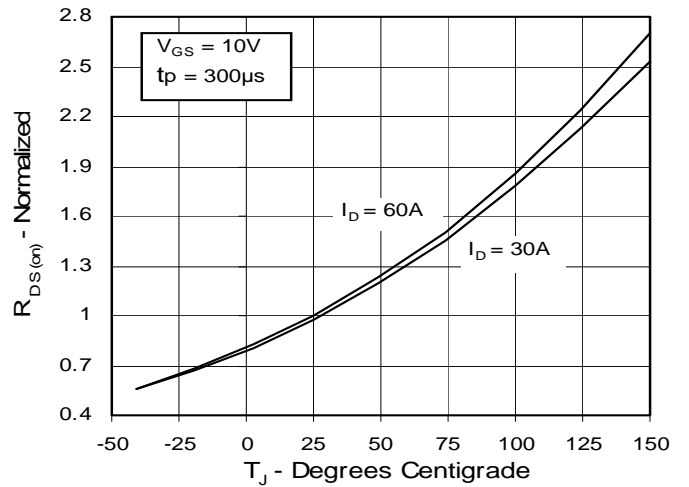


Fig. 5. $R_{DS(on)}$ Normalized to I_{D100} Value vs. I_D

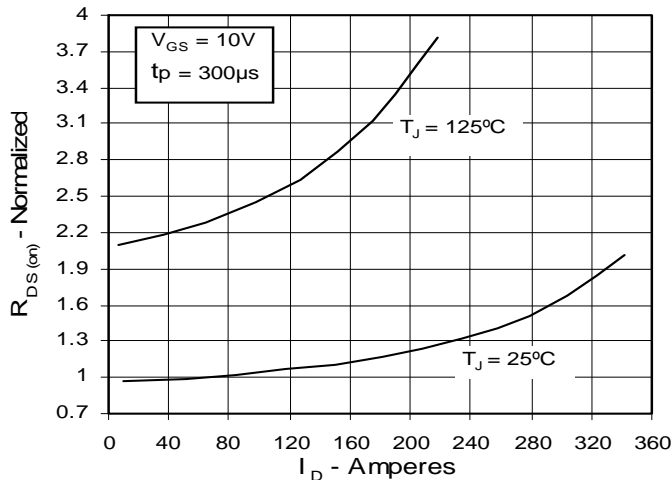


Fig. 6. Drain Current vs. Case Temperature

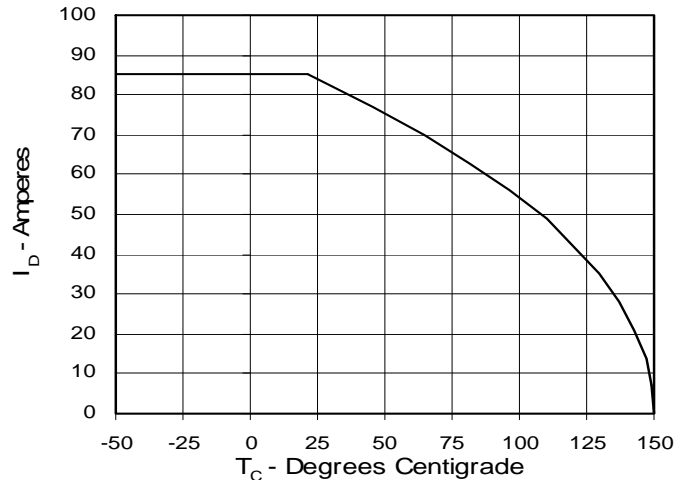
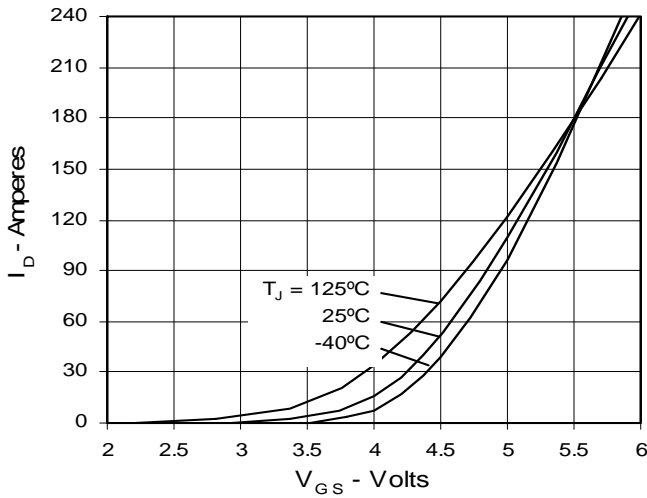
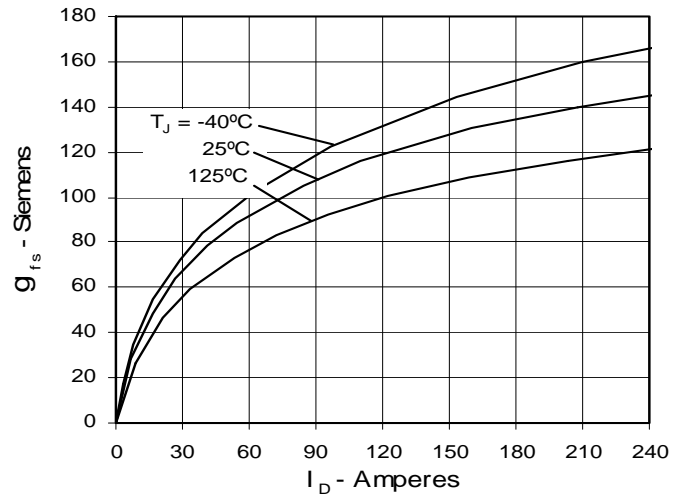
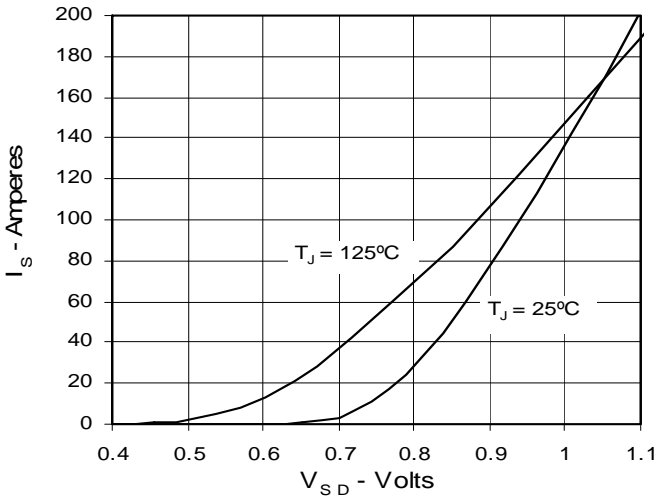
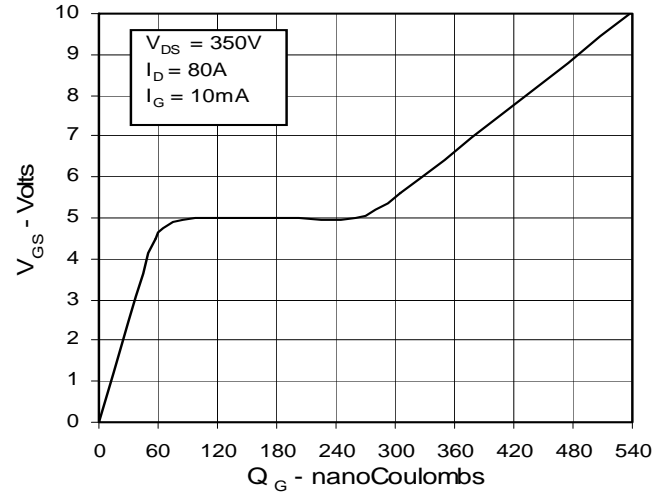
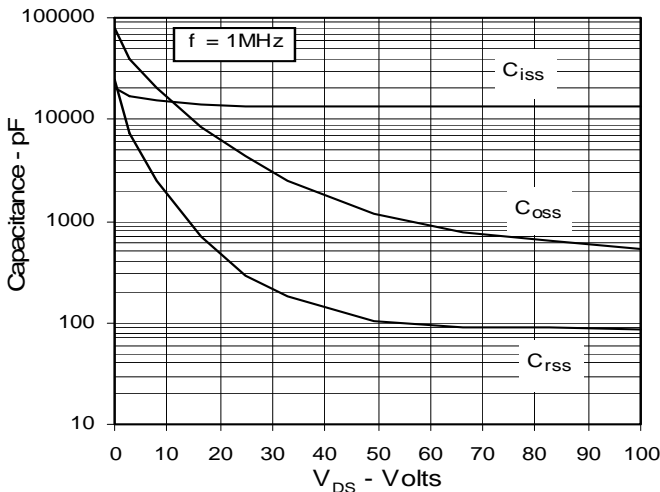


Fig. 7. Input Admittance

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
