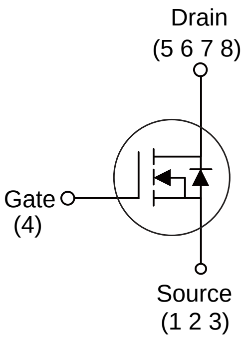
PRODUCT CHARACTERISTICS

V_{DSS}	60V
$R_{DS(ON)}$Typ(@V_{GS}=10V)	1.5mΩ
I_D	195A

Symbol

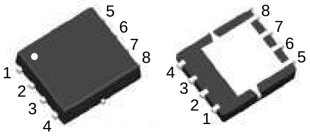


APPLICATIONS

* Motor Control
* High Performance SMPS
* DC/DC Coverter

FEATURE

* Low Gate Charge
* Ultra-low RDS(ON)



PDFN5X6

ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT6113HG	PDFN5X6	5000 pieces/Reel

ABSOLUTE MAXIMUM RATINGS(T_A=25°C,unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current Continuous(@V_{GS}=10V ,T_A=25°C)	I_D	195	A
Drain Current Pulsed	I_{DM}	780	A
Avalanche Energy *	E_{AS}	1156	mJ
Power Dissipation	P_D	123	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	1.02	°C/W

Note: * EAS condition: T_J=25°C ,V_{DD}=30V,V_G=10V ,L=0.5mH,R_g =25Ω

■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V_{DSS}	V_{GS}=0V,I_D=250µA	60	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	-	-	1	µA
Gate to Source Forward Leakage	$I_{GSS(F)}$	V_{DS}=0V, V_{GS}=+20V	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	V_{DS}=0V, V_{GS}=-20V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=20A	-	1.5	1.8	mΩ
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=250µA	2	3.1	4	V
Dynamic characteristics						
Gate Resistance	R_g	V_{GS}=0V,V_{DS}=0V ,f=1.0MHz	-	2.1	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=10V,I_D=5 A	-	26	-	S
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V f=1.0MHz	-	7200	-	pF
Output Capacitance	C_{oss}		-	1500	-	pF
Reverse Transfer Capacitance	C_{rss}		-	510	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	I_D=20A, V_{DS}=30V R_G=4.7Ω ,V_{GS}=10V	-	8	-	ns
Rise Time	t_r		-	10	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	60	-	ns
Fall Time	t_f		-	18	-	ns
Total Gate Charge	Q_g	I_D=20A, V_{DS}=30V V_{GS}=10V	-	79	-	nC
Gate to Source Charge	Q_{gs}		-	25.5	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	16	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	195	A
Maximum Pulsed Current(Body Diode)	I_{SM}		-	-	780	A
Diode Forward Voltage	V_{SD}	I_{SD}=1A, V_{GS}=0V	-	0.68	1.2	V
Reverse Recovery Time	t_{rr}	I_{SD}=20A, T_J=25°C dI/dt=100A/µs	-	60	-	ns
Reverse Recovery Charge	Q_{rr}		-	85	-	nC

■ TYPICAL CHARACTERISTICS

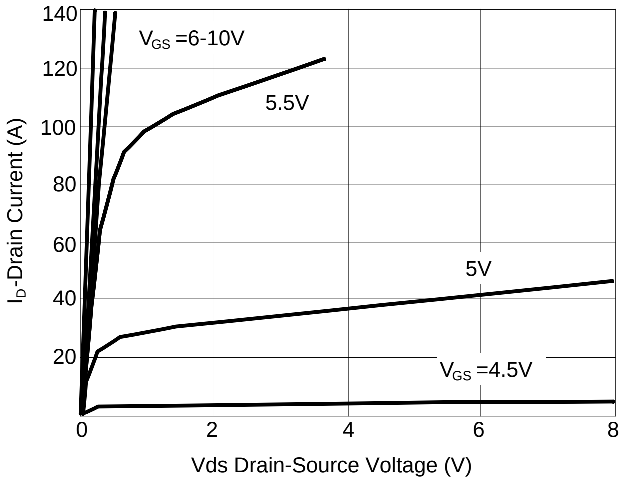


Figure 1: Output Cahracteristics

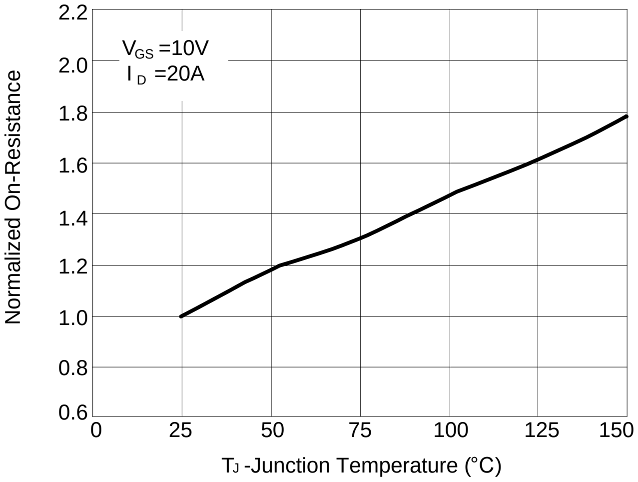


Figure 2: Rdson-Junction Temperature

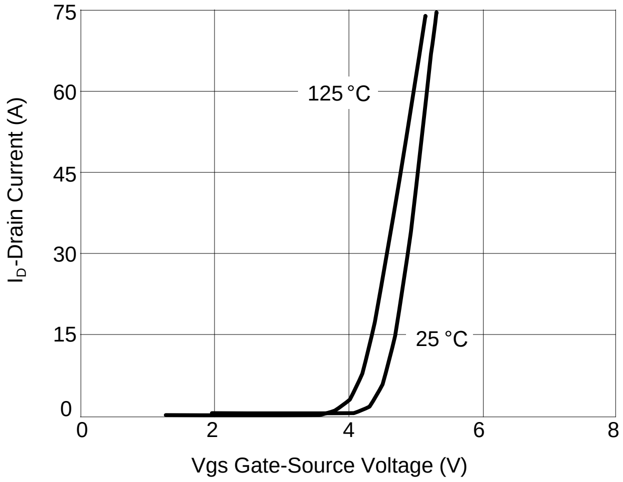


Figure 3: Transfer Cahracteristics

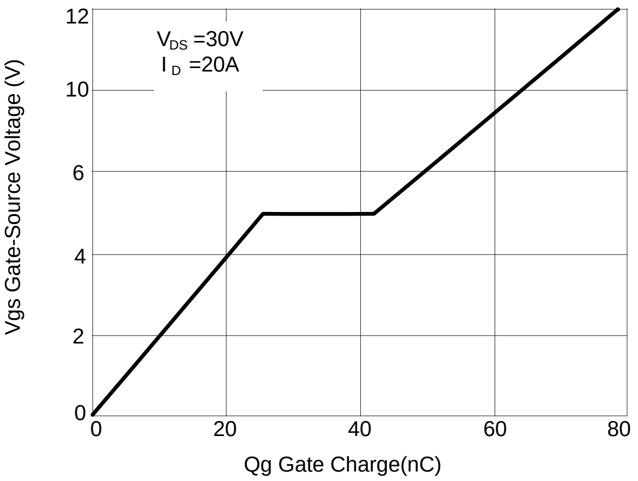


Figure 4: Gate Charge

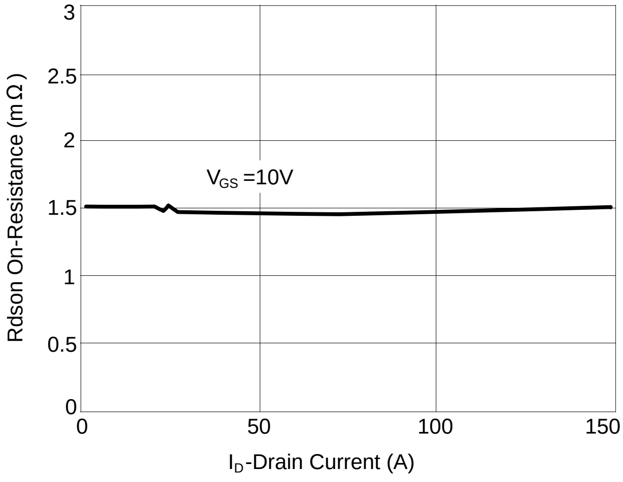


Figure 5: Rdson-Drain Current

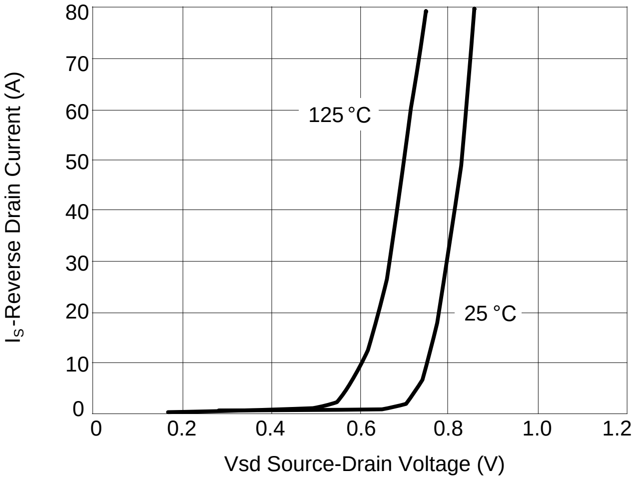


Figure 6: Source-Drain Diode Forward

■ TYPICAL CHARACTERISTICS(Cont.)

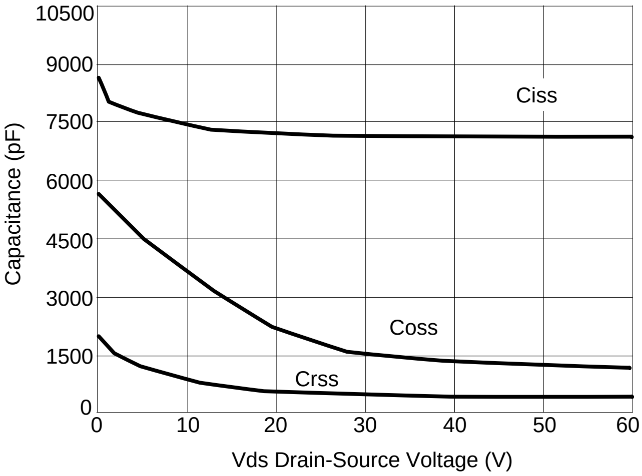


Figure 7: Capacitance vs Vds

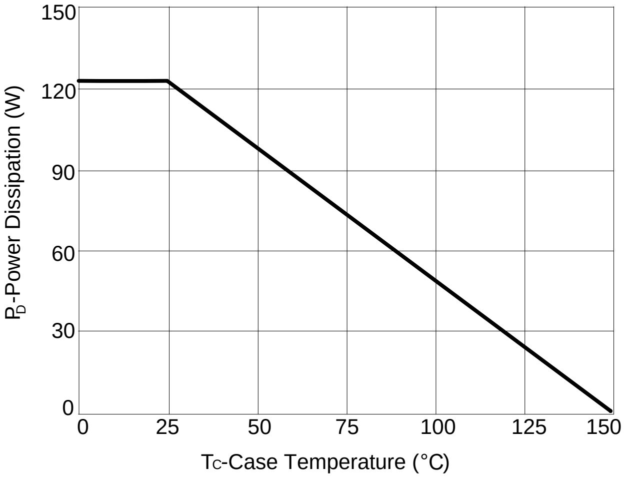


Figure 8: Power De-rating

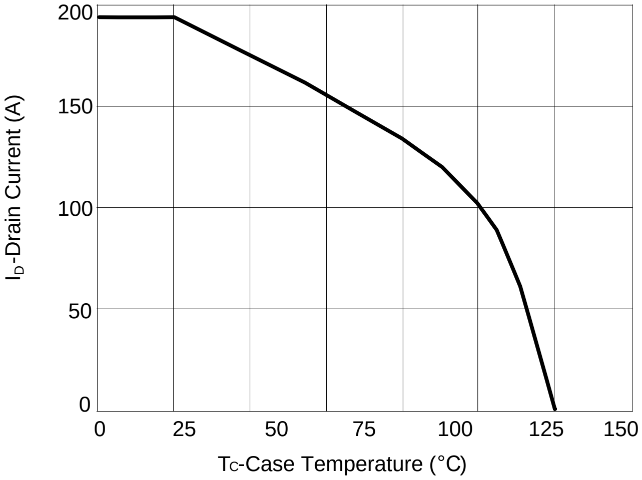


Figure 9: Current De-rating

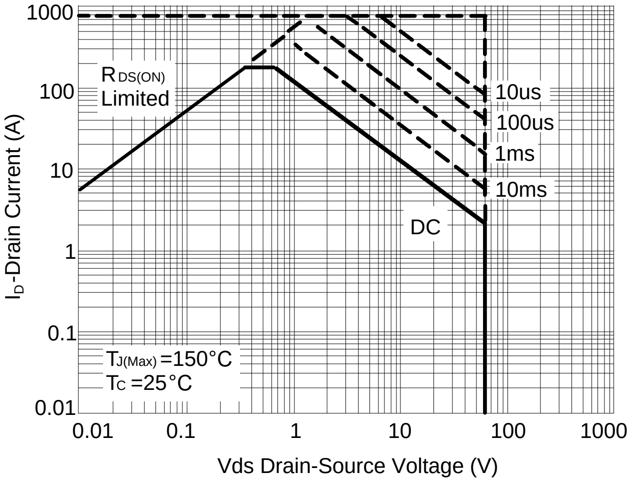
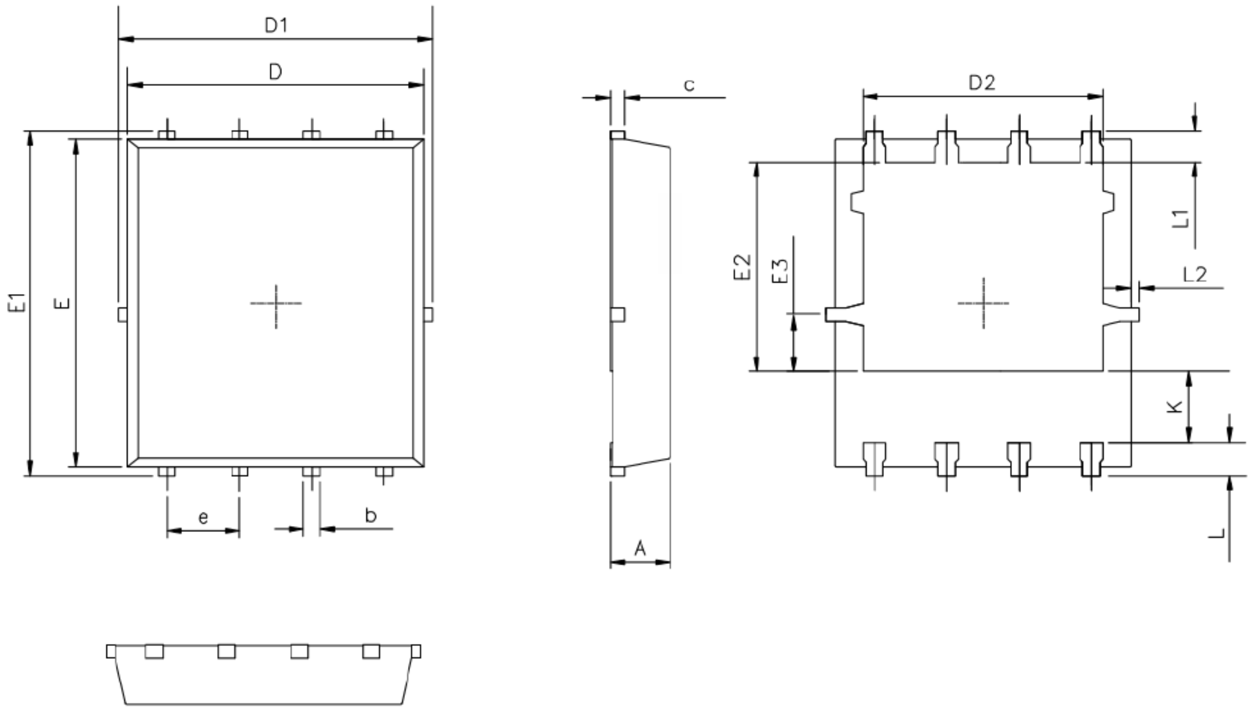
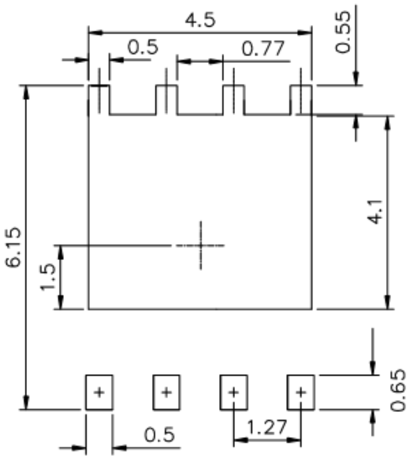


Figure 10: Safe Operation Area

■ PDFN5X6 PACKAGE OUTLINE DIMENSIONS



RECOMMENDED LAND PATTERN



UNIT:mm

	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.35	0.50
c	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
e		1.27	
L	0.40	0.55	0.70
L1		0.65	
L2	0.00		0.15
K	1.00	1.30	1.50