

PRODUCT CHARACTERISTICS

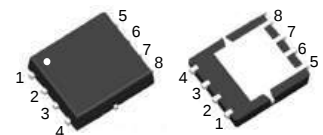
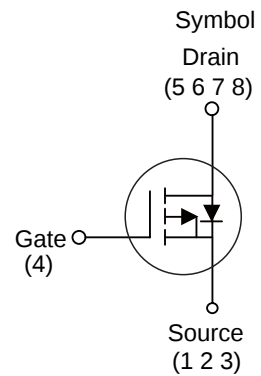
V_{DS}	-40V
$R_{DS(ON)}$ Typ(@ $V_{GS}=-10V$)	10m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=-4.5V$)	13m Ω
I_D	-30A

APPLICATIONS

- * Electronic lamp ballasts based on half bridge
- * Load Switching, Quick/Wireless Charge.
- * Motor Driving

FEATURE

- * Low Gate Charge
- * Pb-Free Lead Plating



PDFN5X6

ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT4712G	PDFN5X6	5000 pieces/Reel

ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current Continuous(@ $V_{GS}=10V, T_A=25^{\circ}C$)	I_D	-30	A
Drain Current Continuous(@ $V_{GS}=10V, T_A=100^{\circ}C$)	I_D	-20	A
Drain Current Pulsed	I_{DM}	-120	A
Avalanche Energy *	E_{AS}	324	mJ
Power Dissipation	P_D	20	W
Junction Temperature	T_J	+150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	6.3	$^{\circ}C/W$

Note: * EAS condition: $T_J=25^{\circ}C, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25\Omega$

■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, 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	-40	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =-40V,V _{GS} =0V	-	-	-1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V,V _{DS} =0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V ,V _{DS} =0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V,I _D =-20A	-	10	13	mΩ
		V _{GS} =-4.5V,I _D =-10A	-	13	17	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =-250μA	-1	-1.55	-2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	5.7	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =-10V,I _D =-3A		13	-	S
Input Capacitance	C _{iss}	V _{DS} =-20V,V _{GS} =0V f=1.0MHz	-	3300	-	pF
Output Capacitance	C _{oss}		-	240	-	pF
Reverse Transfer Capacitance	C _{rss}		-	220	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =-10V,V _{DS} =-20V, I _D =-20A ,R _G =2.4Ω	-	10	-	ns
Rise Time	t _r		-	82	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	93	-	ns
Fall Time	t _f		-	74	-	ns
Total Gate Charge	Q _g	I _D =-20A, V _{DS} =-20V V _{GS} =-10V	-	68	-	nC
Gate to Source Charge	Q _{gs}		-	10	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	14	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	-30	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	-120	A
Diode Forward Voltage	V _{SD}	I _{SD} =-3A, V _{GS} =0V	-	-0.77	-1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =-20A, T _J =25℃ dI/dt=100A/μs	-	90	-	ns
Reverse Recovery Charge	Q _{rr}		-	150	-	nC

■ TYPICAL CHARACTERISTICS

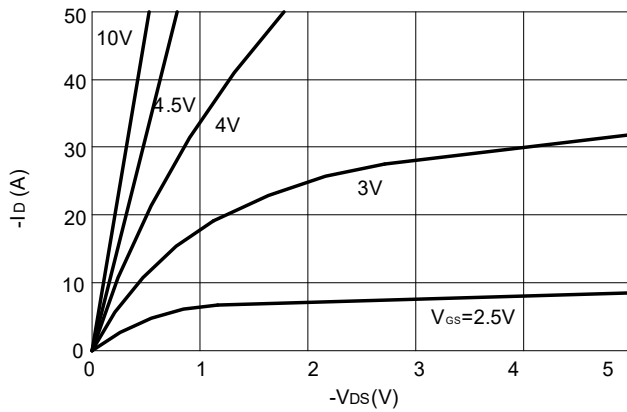


Figure1: Output Characteristics

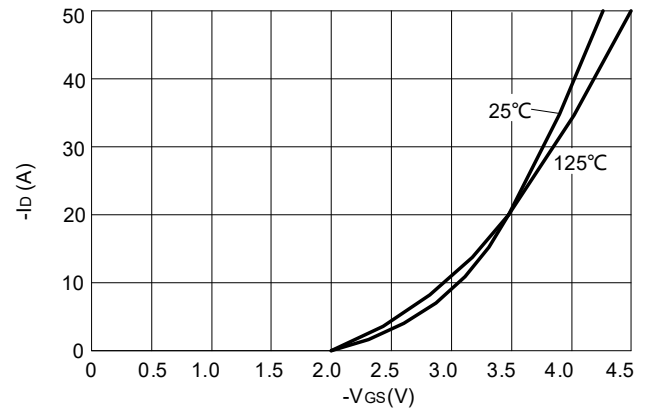


Figure2: Typical Transfer Characteristics

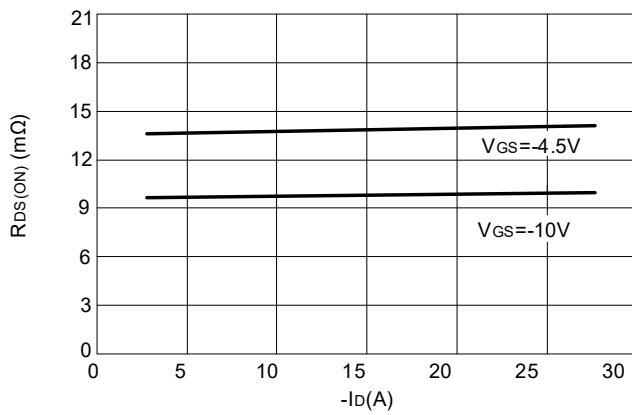


Figure3: On-resistance vs. Drain Current

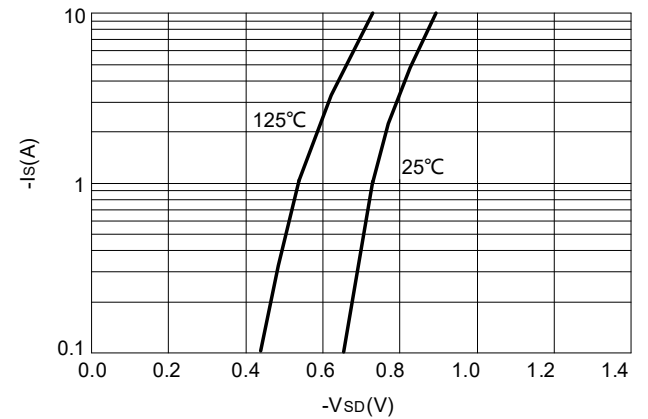


Figure4: Body Diode Characteristics

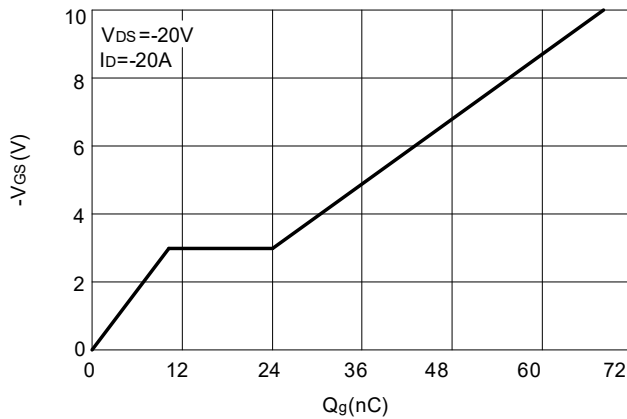


Figure5: Gate Charge Characteristics

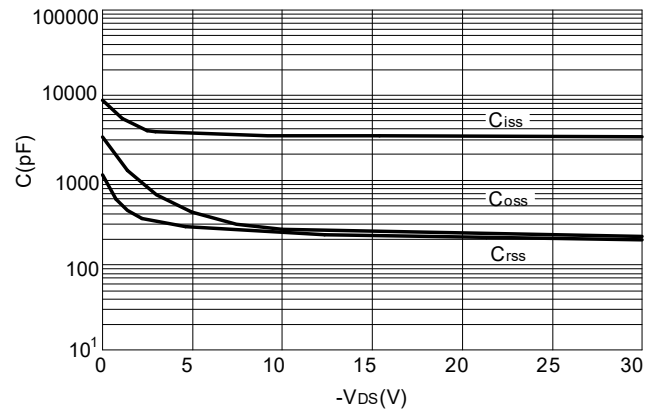


Figure6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

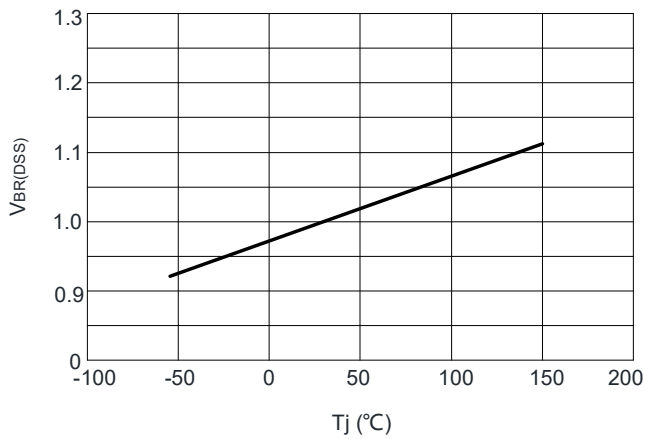


Figure7 : Normalized Breakdown Voltage vs. Junction Temperature

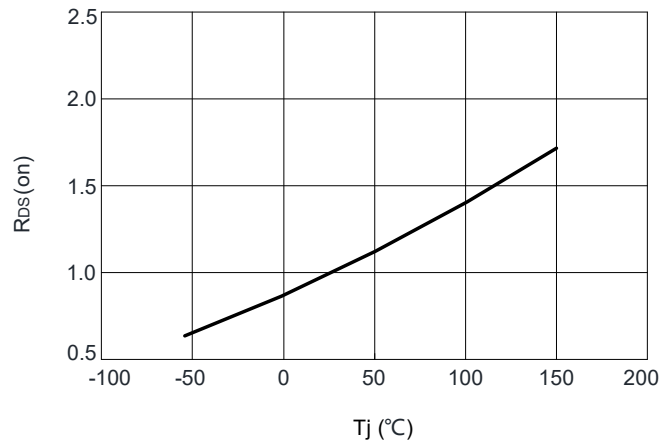


Figure8 : Normalized on Resistance vs. Junction Temperature

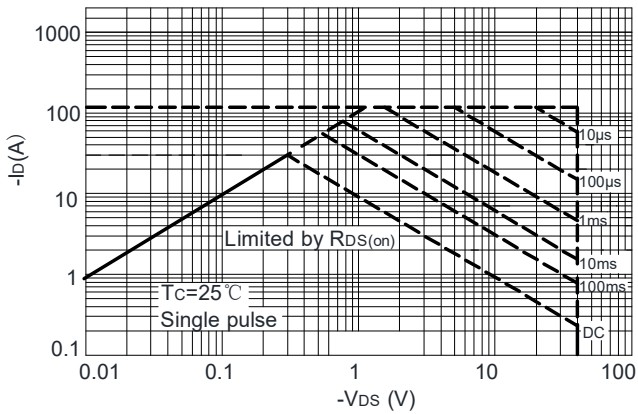


Figure9 : Maximum Safe Operating Area

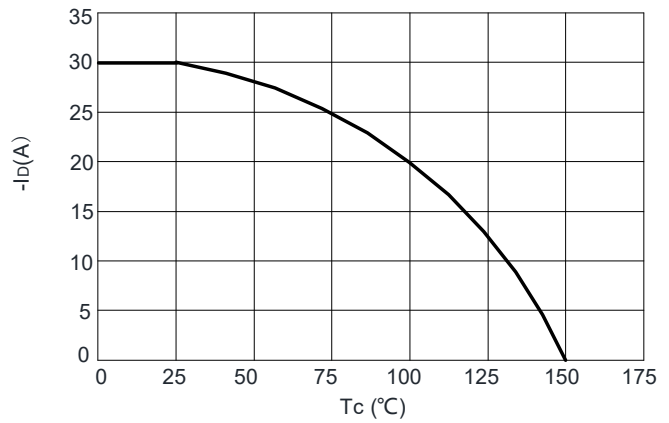
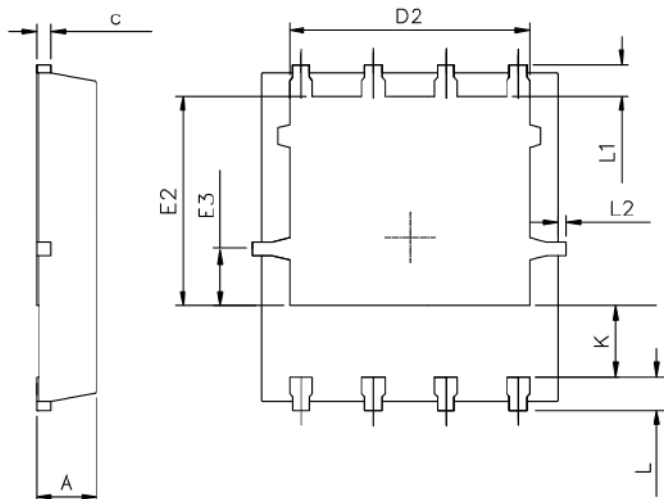
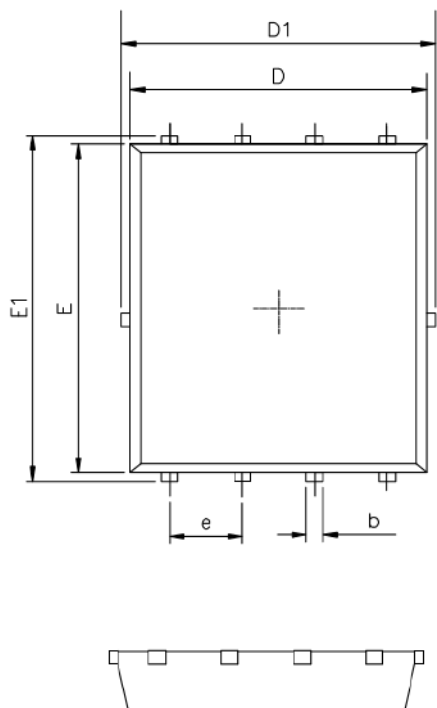
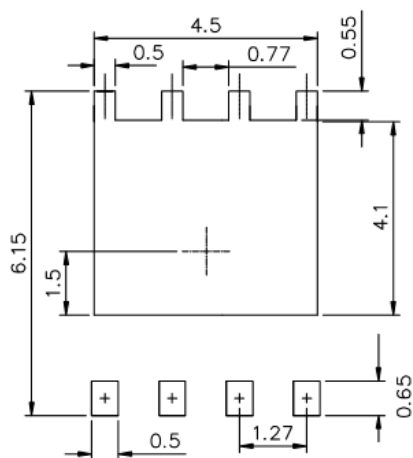


Figure10: Maximum Continuous Drain Current vs. Case Temperature

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