

PRODUCT CHARACTERISTICS

V_{DSS}	30V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	10m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$)	15m Ω
I_D	25A

APPLICATIONS

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

FEATURE

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



ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3910G	PDFN5x6	5000 pieces/Reel

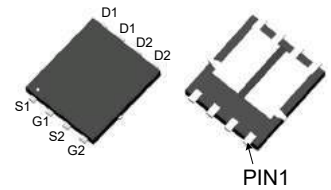
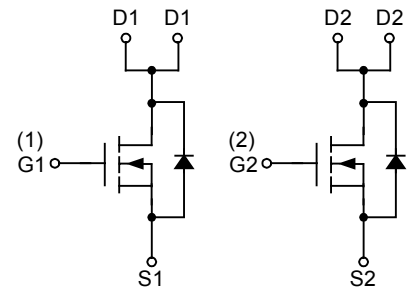
ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current Continuous(@ $V_{GS}=10V, T_A=25^{\circ}C$)	I_D	25	A
Drain Current Pulsed	I_{DM}	100	A
Avalanche Energy	E_{AS}	64	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}	6.2	$^{\circ}C/W$

Symbol



PDFN5x6

■ 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	30	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =30V,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 =10A	-	10	13	mΩ
		V _{GS} =4.5V,I _D =10 A	-	15	19	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.7	2.5	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	1.9	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =5V,I _D =5A	10	-	-	S
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V f=1.0MHz	-	821	-	pF
Output Capacitance	C _{oss}		-	119	-	pF
Reverse Transfer Capacitance	C _{rss}		-	79	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =15V, I _D =20 A,R _G =6Ω	-	7	-	ns
Rise Time	t _r		-	15	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	25	-	ns
Fall Time	t _f		-	6	-	ns
Total Gate Charge	Q _g	I _D =20 A, V _{DS} =15V V _{GS} =10V	-	23	-	nC
Gate to Source Charge	Q _{gs}		-	4.5	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	5.5	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	25	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	100	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.75	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =20 A, T _j =25℃	-	10	-	ns
Reverse Recovery Charge	Q _{rr}	dI/dt=100A/μs	-	8	-	nC

■ TYPICAL CHARACTERISTICS

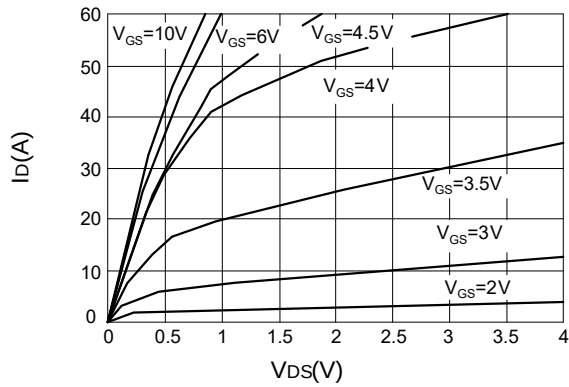


Fig.1 Output characteristic

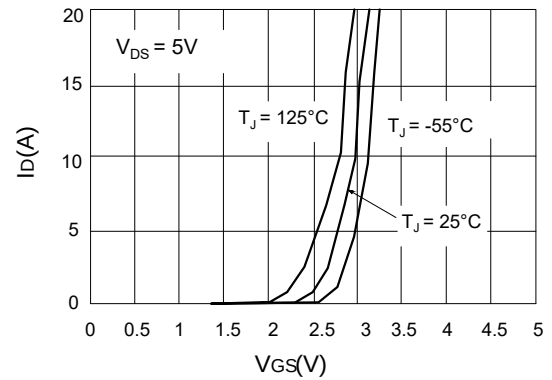


Fig.2 Transfer characteristics

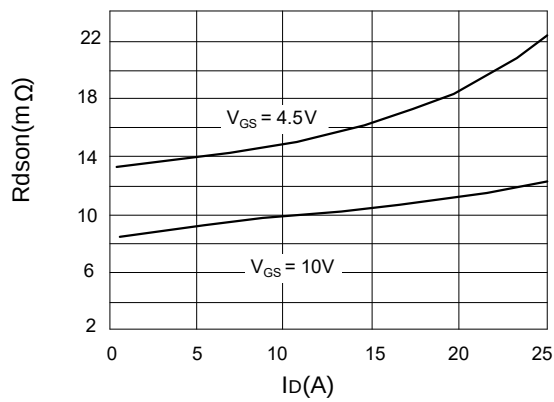


Fig.3 On-resistance vs. drain current

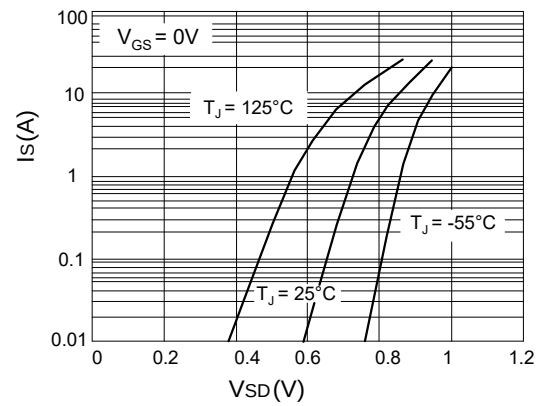


Fig.4 Body diode characteristics

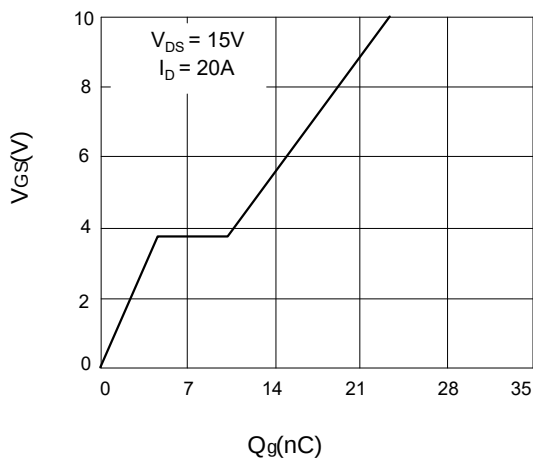


Fig.5 Gate charge characteristics

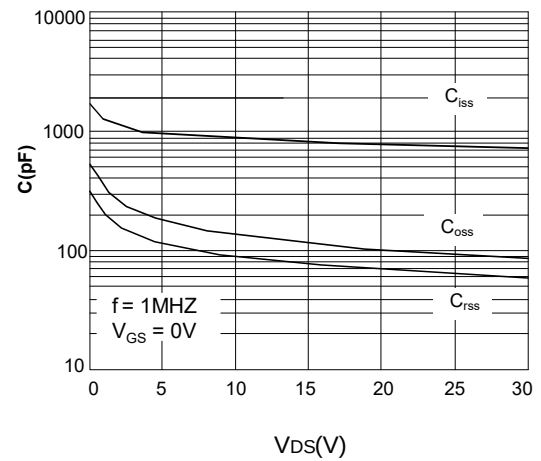


Fig.6 Capacitance characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

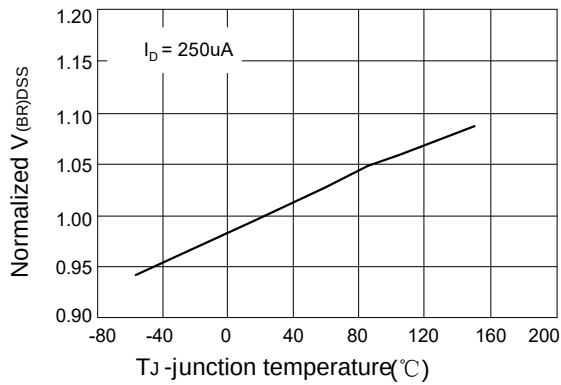


Fig.7 Normalized breakdown voltage vs junction temperature

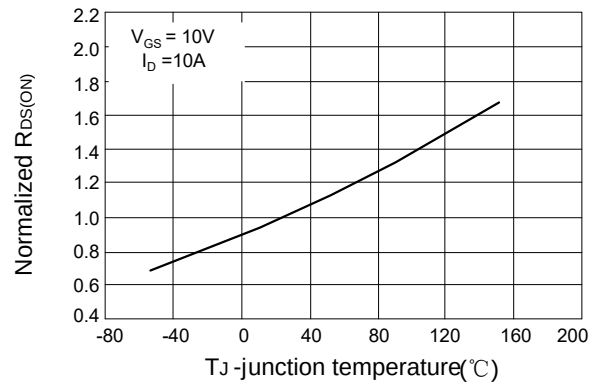


Fig.8 Normalized on resistance vs. junction temperature

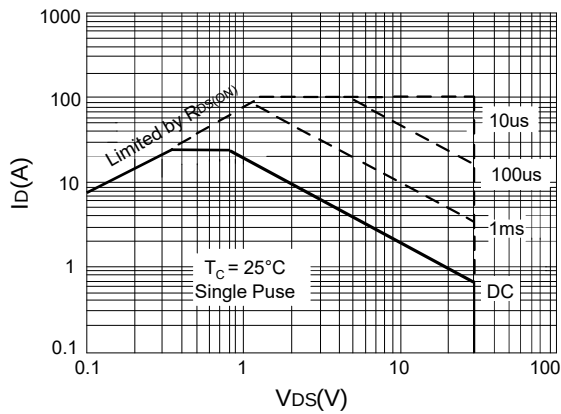


Fig.9 Maximum safe operating area

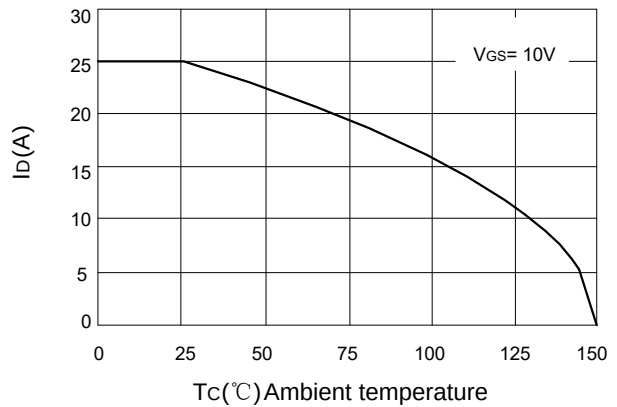
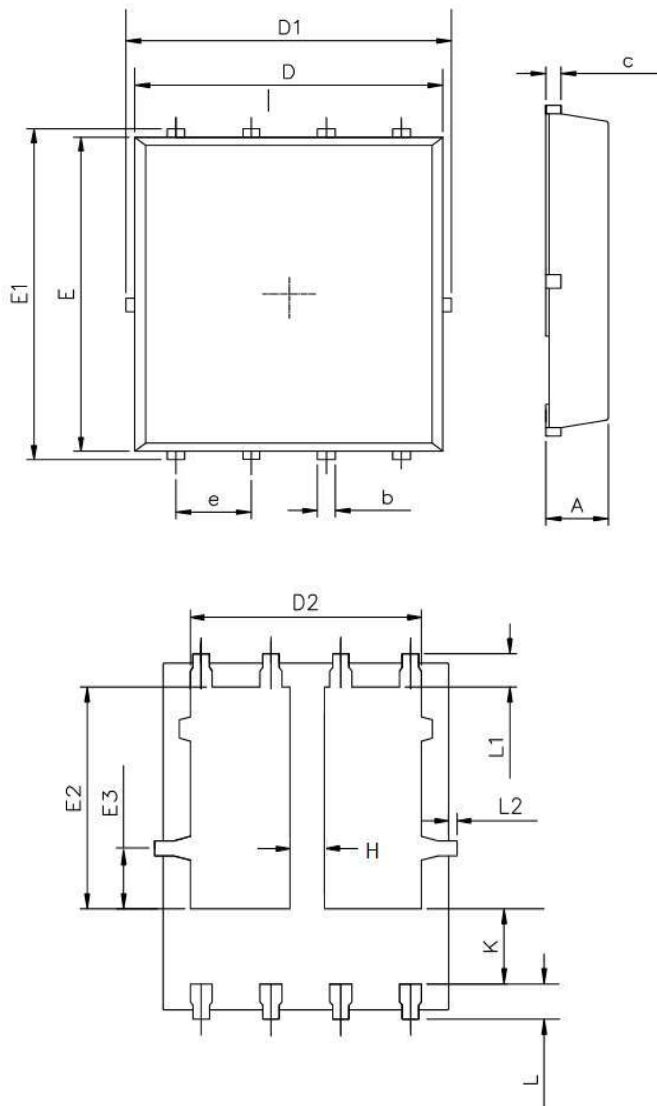


Fig.10 Maximum continuous drain current vs. ambient temperature

PDFN5X6 PACKAGE OUTLINE DIMENSIONS



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
H	0.5	0.6	0.7