

PRODUCT CHARACTERISTICS

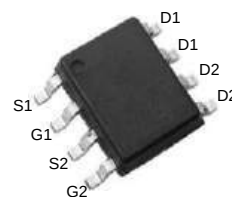
V_{DSS}	30V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	11m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$)	15m Ω
I_D	12A

APPLICATIONS

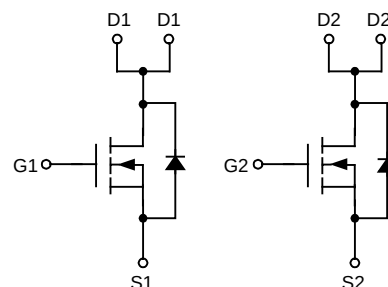
- * Electronic lamp ballasts based on half bridge
- * Load Switching, Quick/Wireless Charge.
- * Motor Driving

FEATURE

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



Symbol



ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT4406S	SOP8	4000 pieces/Reel

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

Parameter	Symbol	Ratings	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	12	A
Drain Current Pulsed	I_{DM}	48	A
Avalanche Energy	E_{AS}	81	mJ
Power Dissipation	P_D	2	W
Junction Temperature	T_J	+150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Ambient	R_{thJA}	62.5	$^{\circ}C/W$

■ 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	-	11	14	mΩ
		V _{GS} =4.5V,I _D =5 A	-	15	22	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.7	2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	3.7	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =5V,I _D =5A	-	9	-	S
Input Capacitance	C _{iss}	V _{DS} =20V,V _{GS} =0V f=1.0MHz	-	808	-	pF
Output Capacitance	C _{oss}		-	126	-	pF
Reverse Transfer Capacitance	C _{rss}		-	78	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =15V, I _D =12 A,R _G =3Ω	-	6	-	ns
Rise Time	t _r		-	19	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	22	-	ns
Fall Time	t _f		-	5	-	ns
Total Gate Charge	Q _g	I _D =12 A, V _{DS} =15V V _{GS} =10V	-	20	-	nC
Gate to Source Charge	Q _{gs}		-	4	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	5	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	12	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	48	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.72	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =12 A, T _J =25 °C	-	8	-	ns
Reverse Recovery Charge	Q _{rr}	dI /dt=100A/μs	-	2	-	nC

■ TYPICAL CHARACTERISTICS

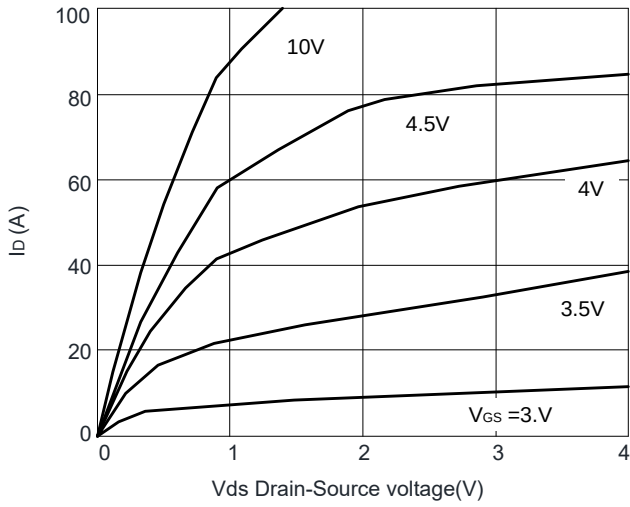


Figure 1: Output Characteristics

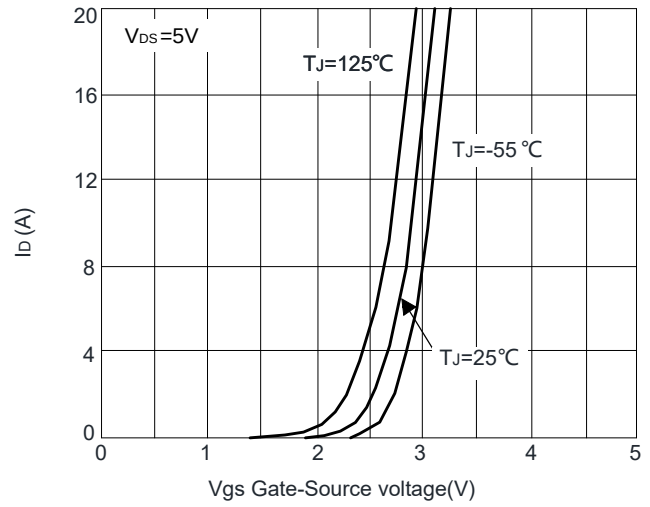


Figure 2: Transfer Characteristics

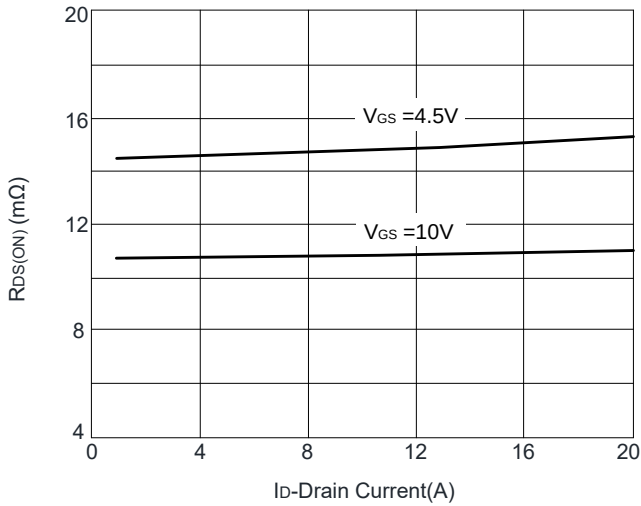


Figure 3: On-Resistance vs. Drain Current

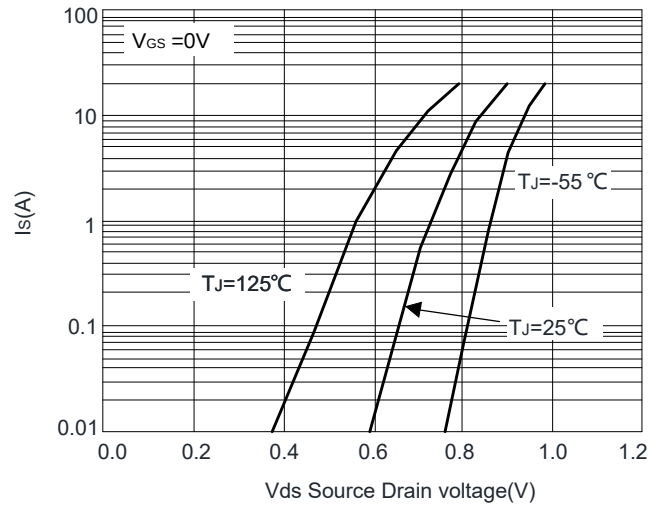


Figure 4: Body diode Characteristics

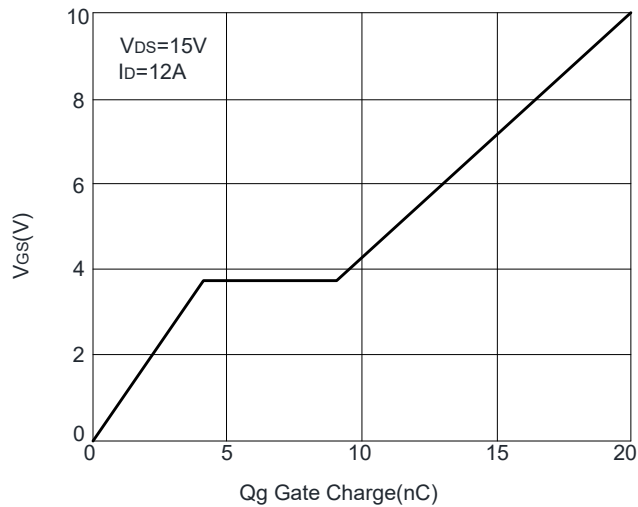


Figure 5: Gate Charge Characteristics

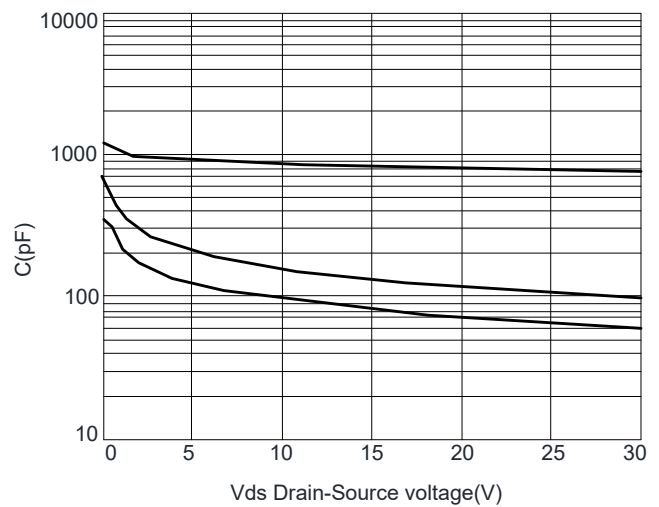


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

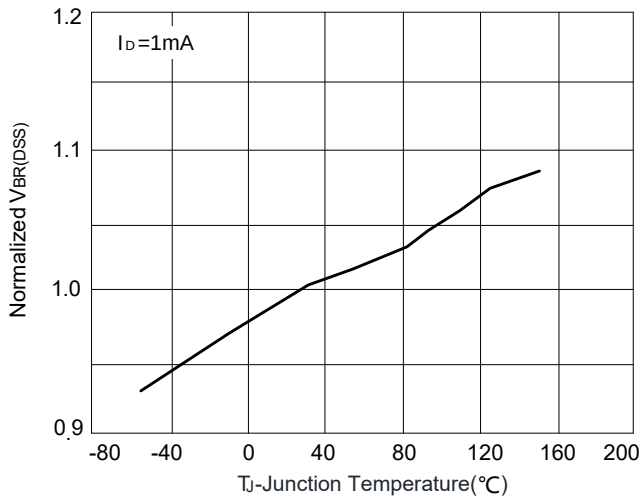


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

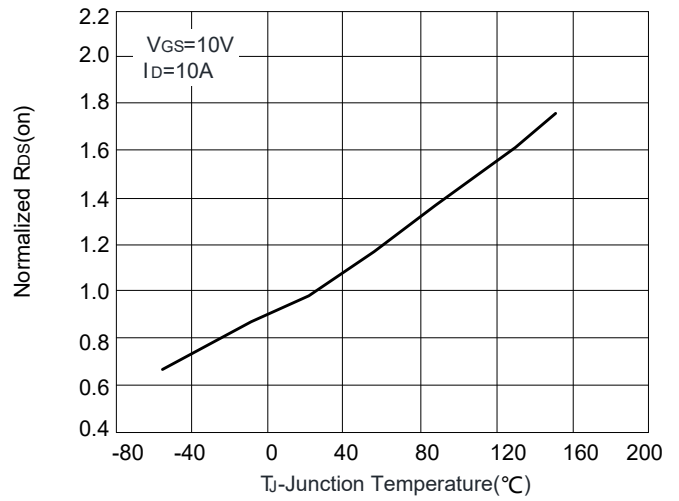


Figure 8: Normalized On-resistance vs. Junction Temperature

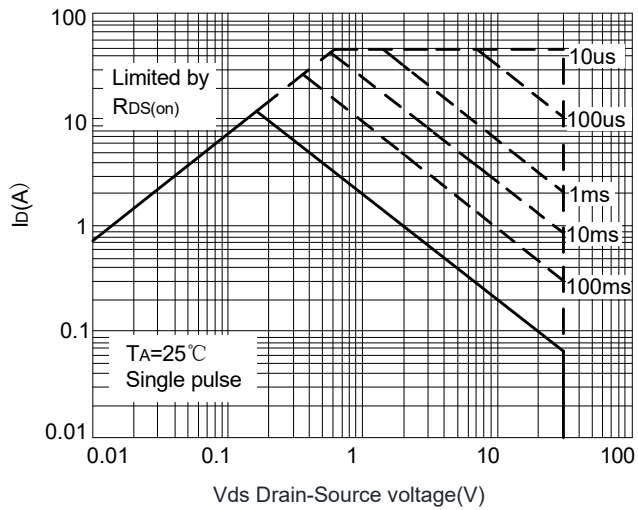


Figure 9: Maximum Safe Operating Area

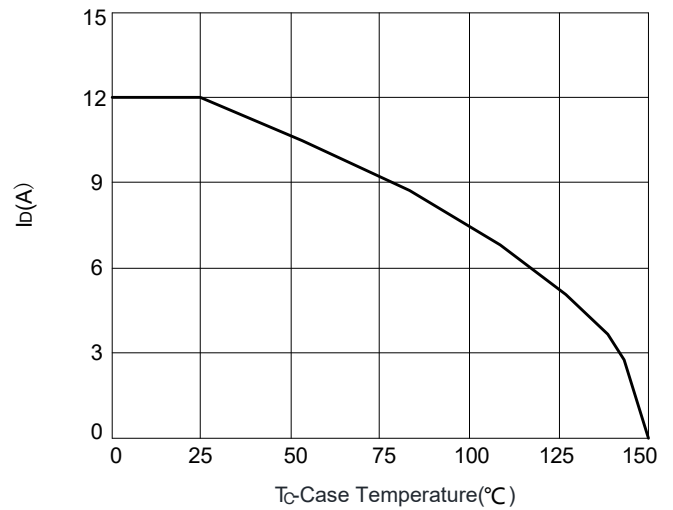


Figure 10: Mximum Continuous Drain Current vs. Case Temperature

Limited by
 $R_{DS(on)}$

■ SOP8 PACKAGE OUTLINE DIMENSIONS

