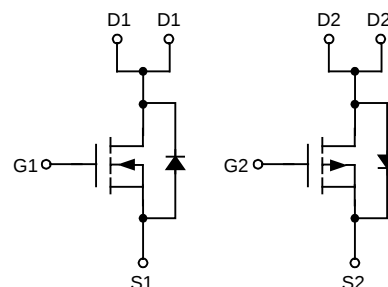


PRODUCT CHARACTERISTICS

N-CHANNEL MOSFET		P-CHANNEL MOSFET	
V_{DSS}	40V	V_{DSS}	-40V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	17m Ω	$R_{DS(ON)}$ Typ(@ $V_{GS}=-10V$)	44m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$)	22m Ω	$R_{DS(ON)}$ Typ(@ $V_{GS}=-4.5V$)	54m Ω
I_D	9A	I_D	-7.2A

Symbol

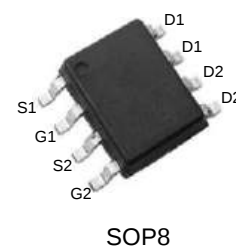


APPLICATIONS

- * 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	MOT4615S	SOP8	4000 pieces/Reel

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

Parameter	Symbol	N-channel	P-channel	Unit
Drain-Source Voltage	V_{DSS}	40	-40	V
Gate-Source Voltage	V_{GSS}	± 20	± 20	V
Drain Current Continuous(@ $V_{GS}=\pm 10V$, $T_A=25^{\circ}C$)	I_D	9	-7.2	A
Drain Current Pulsed	I_{DM}	36	-28.8	A
Avalanche Energy	E_{AS}	42	56	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	$^{\circ}C/W$

■ N-MOS 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 =4.5A	-	17	22	mΩ
		V _{GS} =4.5V,I _D =4.5A	-	22	28	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.5	2.5	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	2.8	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =10V,I _D =3A	-	12	-	S
Input Capacitance	C _{iss}	V _{DS} =20V,V _{GS} =0V f=1.0MHz	-	980	-	pF
Output Capacitance	C _{oss}		-	65	-	pF
Reverse Transfer Capacitance	C _{rss}		-	55	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =20V, I _D =9 A,R _G =3Ω	-	4	-	ns
Rise Time	t _r		-	3	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	15	-	ns
Fall Time	t _f		-	2	-	ns
Total Gate Charge	Q _g	I _D =9A, V _{DS} =20V V _{GS} =10V	-	12	-	nC
Gate to Source Charge	Q _{gs}		-	3.2	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	3.1	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	9	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	36	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.74	1.2	V

■ P-MOS 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 =-3.6A	-	44	50	mΩ
		V _{GS} =-4.5V,I _D =-3.6 A	-	54	65	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =-250μA	-1	-1.5	-2.4	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	6.4	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =-5V,I _D =-5A	-	10	-	S
Input Capacitance	C _{iss}	V _{DS} =-20V,V _{GS} =0V f=1.0MHz	-	890	-	pF
Output Capacitance	C _{oss}		-	80	-	pF
Reverse Transfer Capacitance	C _{rss}		-	60	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =-10VV _{DS} =-20V, I _D =-2A ,R _G =25Ω	-	6	-	ns
Rise Time	t _r		-	8	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	2.1	-	ns
Fall Time	t _f		-	3.6	-	ns
Total Gate Charge	Q _g	I _D =-2A, V _{GS} =-10V V _{DS} =-20V	-	20	-	nC
Gate to Source Charge	Q _{gs}		-	12	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	46	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	-7.2	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	-28.8	A
Diode Forward Voltage	V _{SD}	I _{SD} =-1A, V _{GS} =0V	-	-0.74	-1.2	V

■ N-MOS TYPICAL CHARACTERISTICS

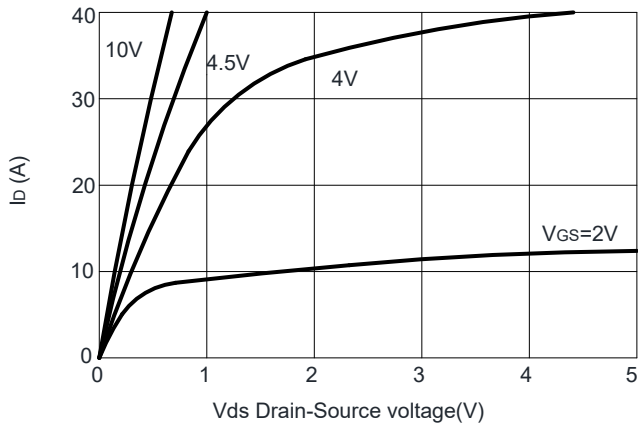


Figure 1: Output Characteristics

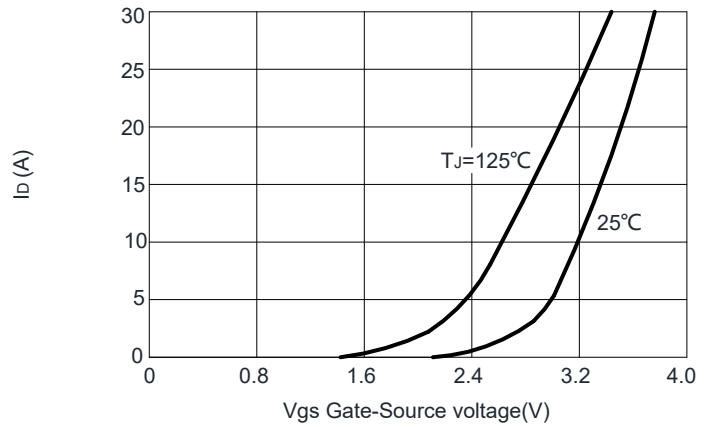


Figure 2: Transfer Characteristics

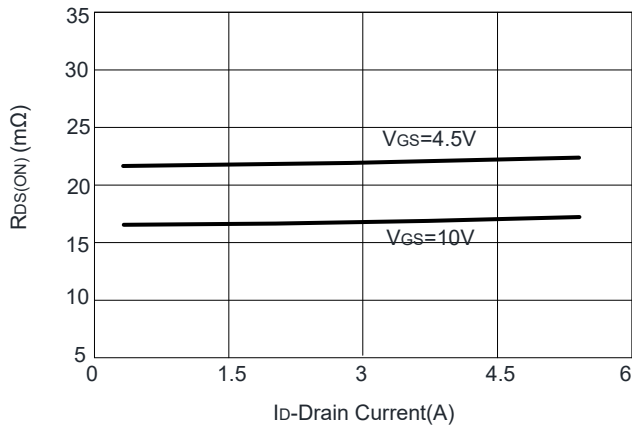


Figure 3: On-Resistance vs. Drain Current

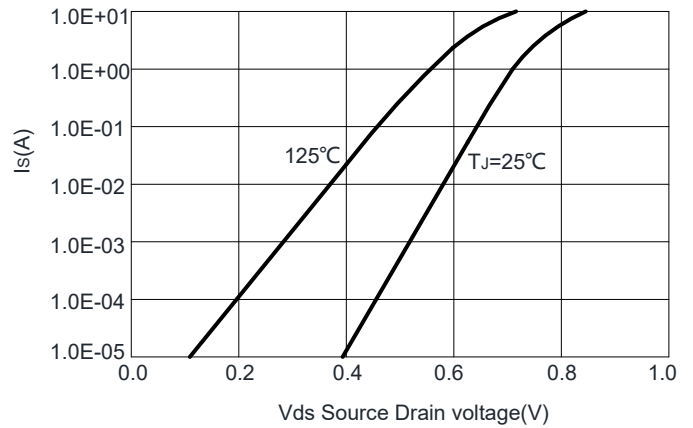


Figure 4: Body diode Characteristics

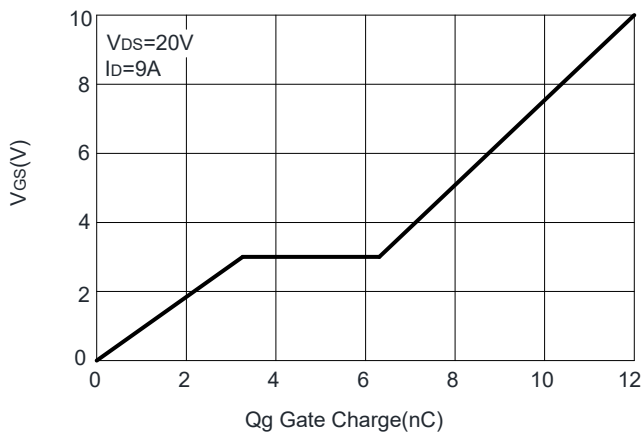


Figure 5: Gate Charge Characteristics

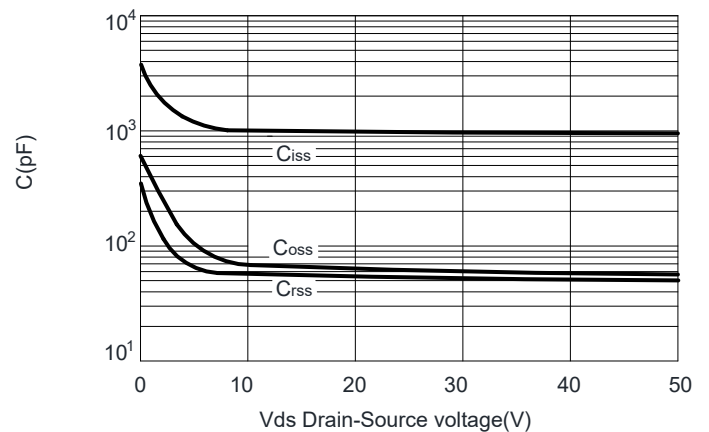


Figure 6: Capacitance Characteristics

■ N-MOS TYPICAL CHARACTERISTICS(Cont.)

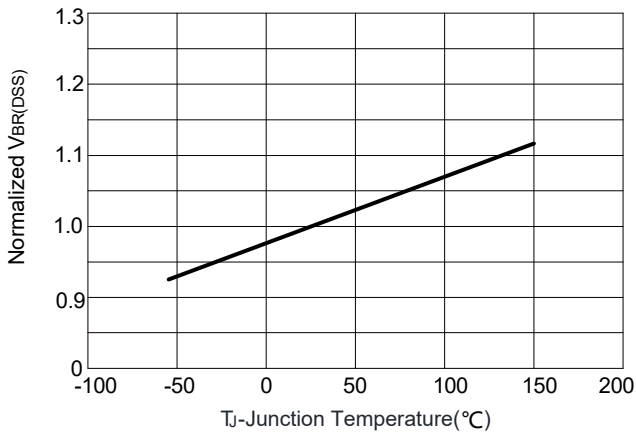


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

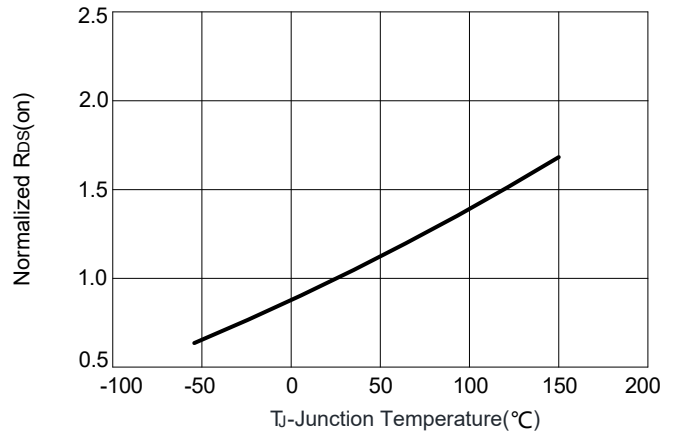


Figure 8: Normalized On-resistance vs. Junction Temperature

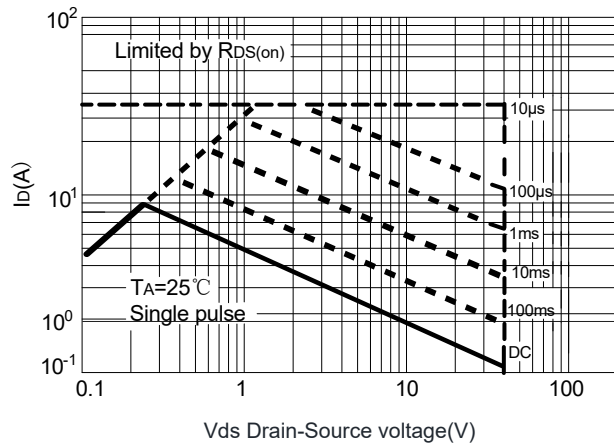


Figure 9: Maximum Safe Operating Area

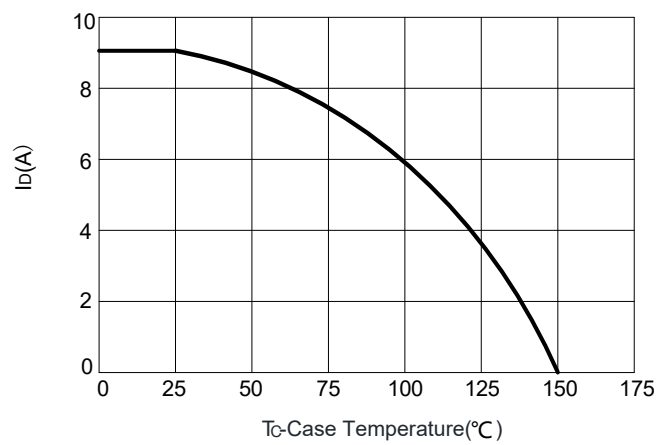


Figure 10: Mximum Continuous Drain Current vs. Case Temperature

■ P-MOS TYPICAL CHARACTERISTICS

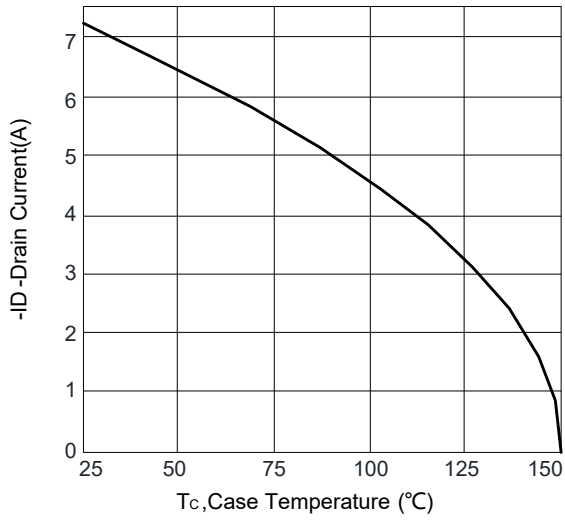


Figure 1: Continuous Drain Current vs. Tc

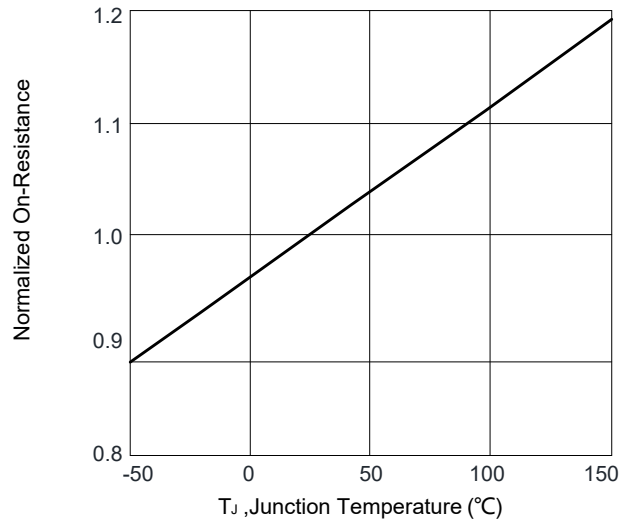


Figure 2: Normalized Rdsont vs. Tj

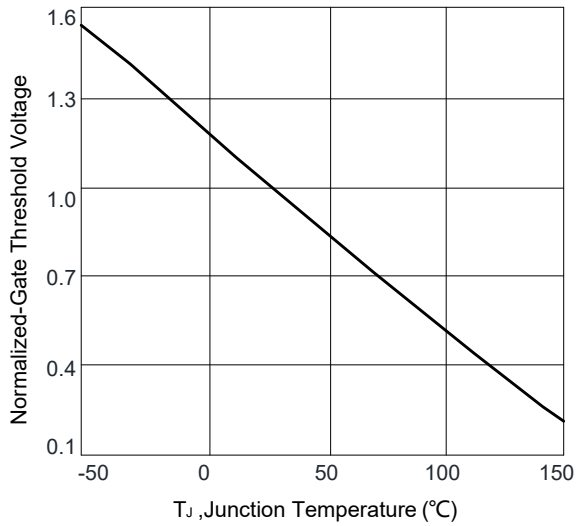


Figure 3: Normalized Vth vs. Tj

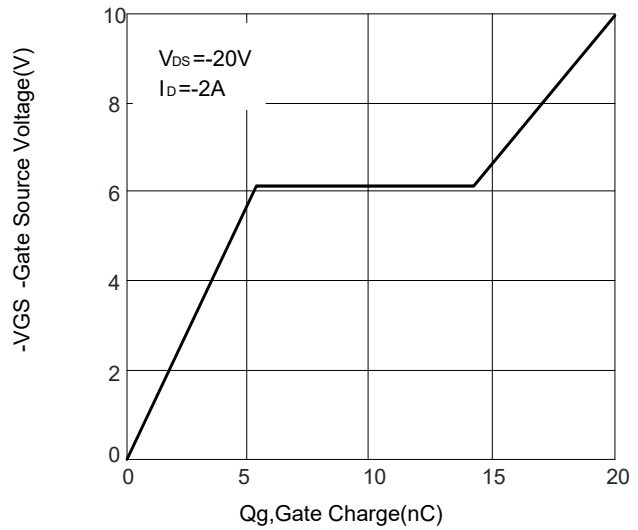


Figure 4: Gate Charge Waveform

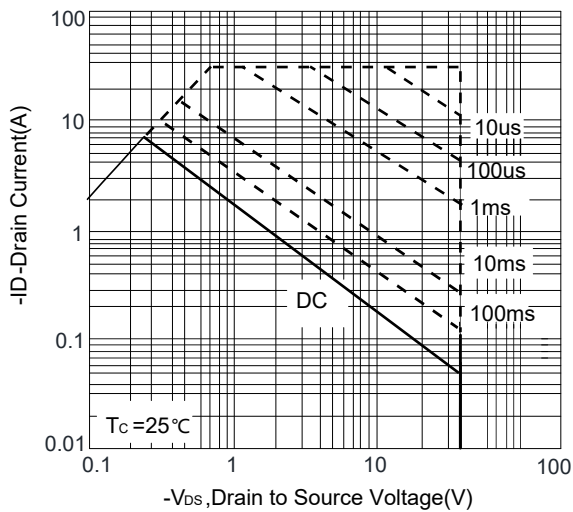


Figure 5: Maximum Safe Operation Area

■ SOP8 PACKAGE OUTLINE DIMENSIONS

