

PRODUCT CHARACTERISTICS

V_{DS}	-30V
$R_{DS(ON)}$ Typ(@ $V_{GS}=-10V$)	18m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=-4.5V$)	24m Ω
I_D	-13A

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	MOT3816S	SOP8	4000 pieces/Reel

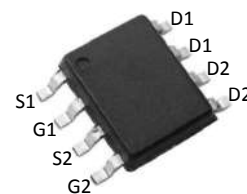
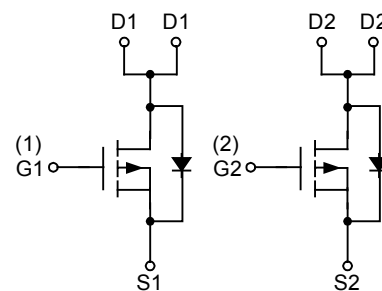
ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current Continuous(@ $V_{GS}=-10V$, $T_A=25^{\circ}C$)	I_D	-13	A
Drain Current Pulsed	I_{DM}	-52	A
Avalanche Energy	E_{AS}	90	mJ
Power Dissipation	P_D	5	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}	25	$^{\circ}C/W$

Symbol



■ 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 =-6A	-	18	24	mΩ
		V _{GS} =-4.5V,I _D =-6A	-	24	28	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	-	5.1	-	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	-	1300	-	pF
Output Capacitance	C _{oss}		-	159	-	pF
Reverse Transfer Capacitance	C _{rss}		-	142	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =-10V,V _{DS} =-15V, I _D =-7.1A,R _G =3Ω	-	9.2	-	ns
Rise Time	t _r		-	11	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	34	-	ns
Fall Time	t _f		-	44	-	ns
Total Gate Charge	Q _g	I _D =-7.1 A, V _{DS} =-15V V _{GS} =-10V	-	36	-	nC
Gate to Source Charge	Q _{gs}		-	6.5	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	4.5	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	-13	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	- 52	A
Diode Forward Voltage	V _{SD}	I _{SD} =-1A, V _{GS} =0V	-	-0.76	-1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =-7.1A, T _j =25°C dI/dt=100A/μs	-	11.5	-	ns
Reverse Recovery Charge	Q _{rr}		-	6.8	-	nC

■ TYPICAL CHARACTERISTICS

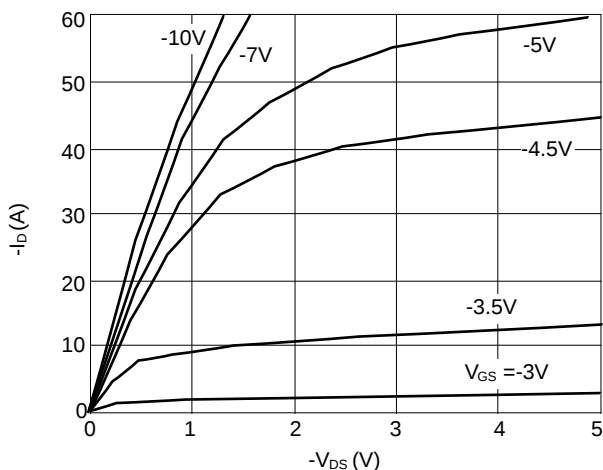


Figure 1: Output Characteristics

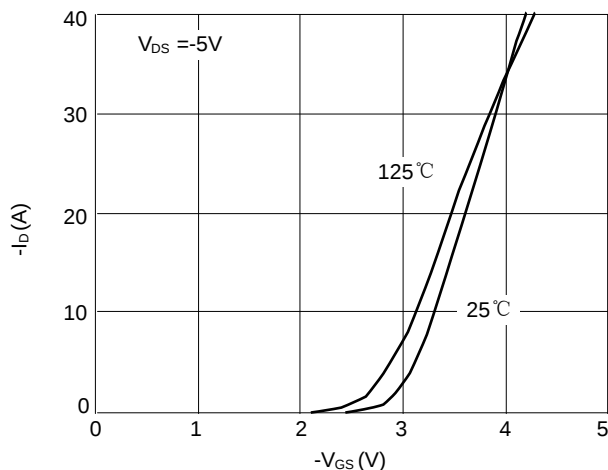


Figure 2: Transfer Characteristics

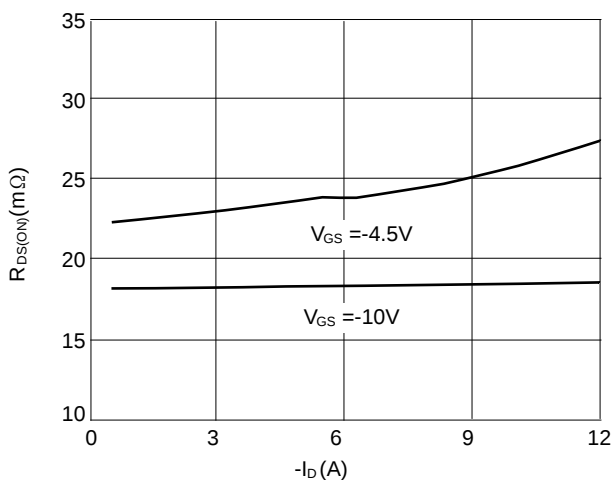


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

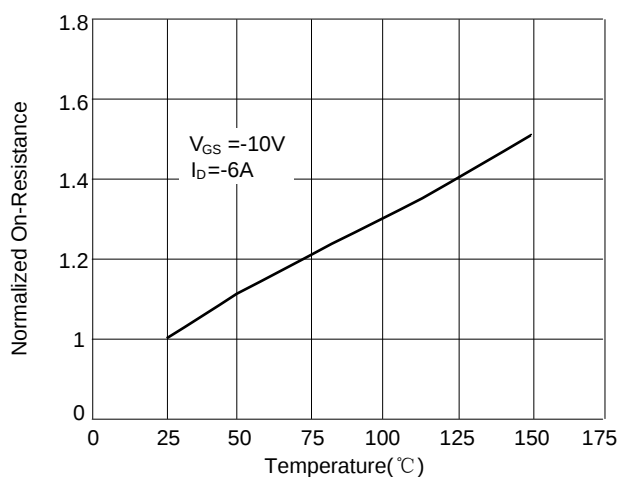


Figure 4: On-Resistance vs. Junction Temperature

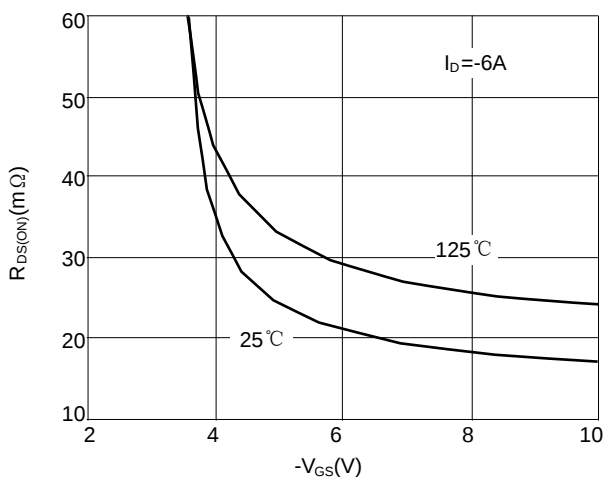


Figure 5: On-Resistance vs. Gate Source Voltage

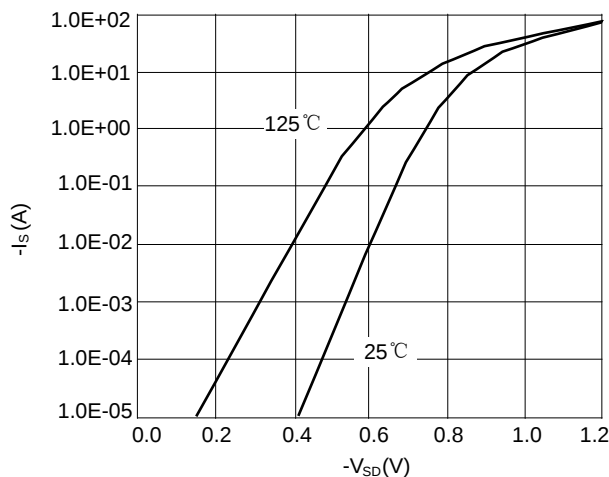
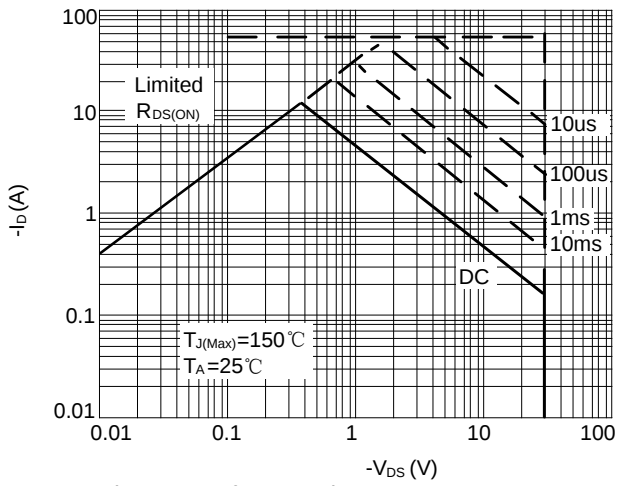
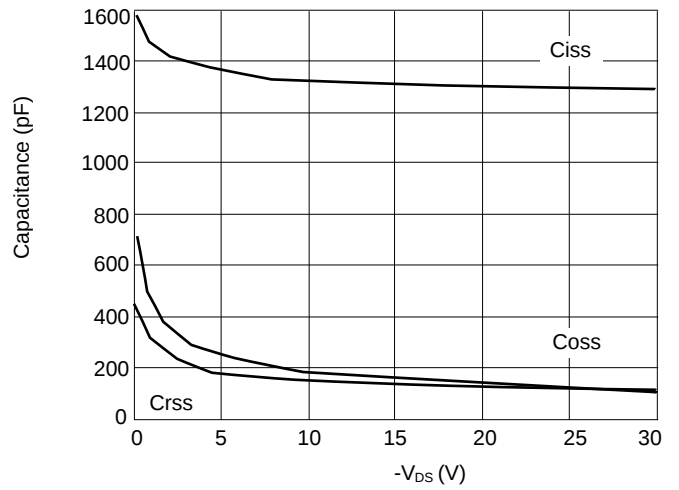
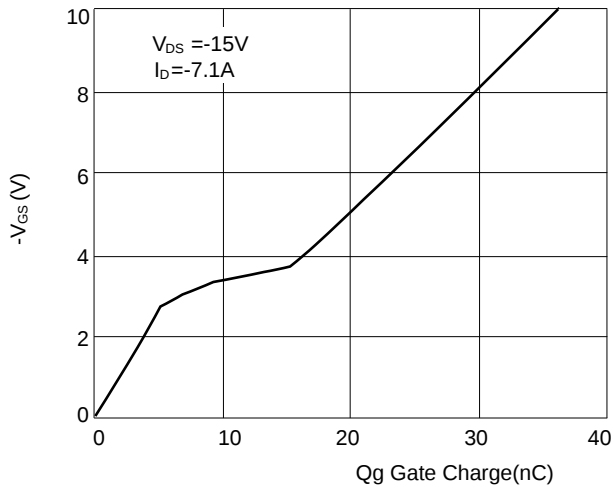


Figure 6: Body Diode Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)



■ SOP8 PACKAGE OUTLINE DIMENSIONS

