

PRODUCT CHARACTERISTICS

V_{DS}	-40V
$R_{DS(ON)}$ Typ(@ $V_{GS}=-10V$)	13.5m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=-4.5V$)	16.7m 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

ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT4712S	SOP8	4000 pieces/Reel

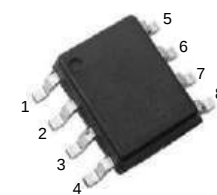
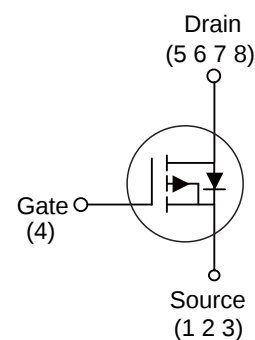
ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, unless otherwise specified)

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	-12	A
Drain Current Pulsed	I_{DM}	-48	A
Avalanche Energy	E_{AS}	361	mJ
Power Dissipation	P_D	3.5	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}	36	$^{\circ}C/W$

Symbol



SOP8



■ 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 _D S=-40V,V _{GS} =0V	-	-	-1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V,V _D S=0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V ,V _D S=0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V,I _D =-10 A	-	13.5	15	mΩ
		V _{GS} =-4.5V,I _D =-10 A	-	16.7	19	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _D S=V _{GS} ,I _D =-250μA	-1	-1.55	-2.5	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V,V _D S=0V ,f=1.0MHz	-	5.6	-	Ω
Forward Transconductance	g _{fs}	V _D S=-10V,I _D =-3A	-	14	-	S
Input Capacitance	C _{iss}	V _D S=-20V,V _{GS} =0V f=1.0MHz	-	3400	-	pF
Output Capacitance	C _{oss}		-	250	-	pF
Reverse Transfer Capacitance	C _{rss}		-	240	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =-10V,V _D S=-20V, I _D =-12 A ,R _G =2.5Ω	-	10	-	ns
Rise Time	t _r		-	21	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	53	-	ns
Fall Time	t _f		-	29	-	ns
Total Gate Charge	Q _g	I _D =-12 A, V _D S=-20V V _{GS} =-10V	-	42	-	nC
Gate to Source Charge	Q _{gs}		-	7.3	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	8.5	-	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 dI/dt=100A/μs	-	39	-	ns
Reverse Recovery Charge	Q _{rr}		-	42	-	nC

■ TYPICAL CHARACTERISTICS

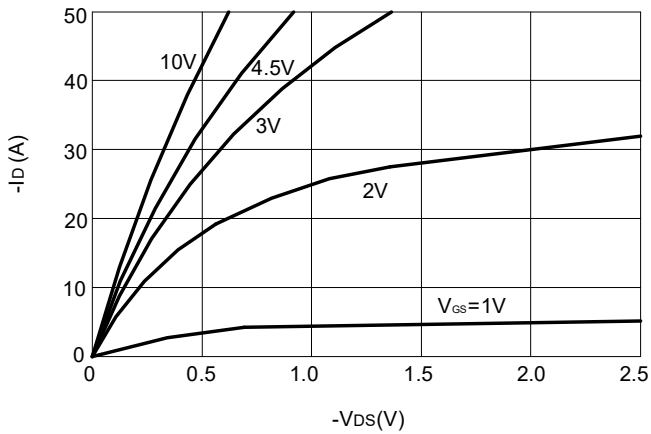


Figure 1: Output Characteristics

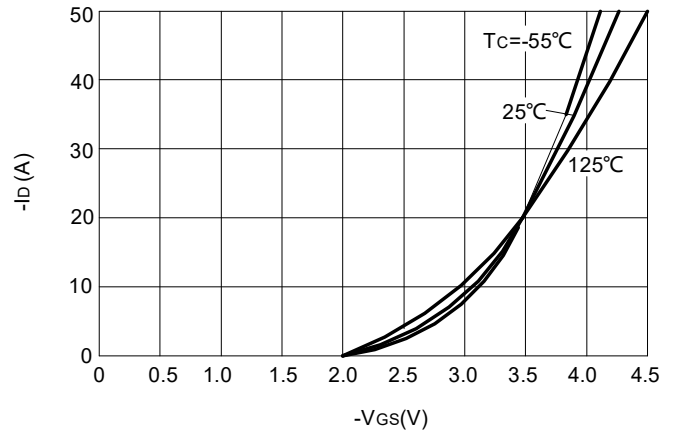


Figure 2: Typical Transfer Characteristics

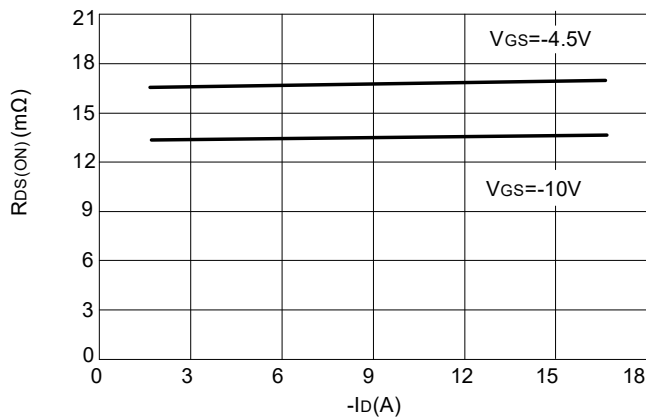


Figure 3: On-resistance vs. Drain Current

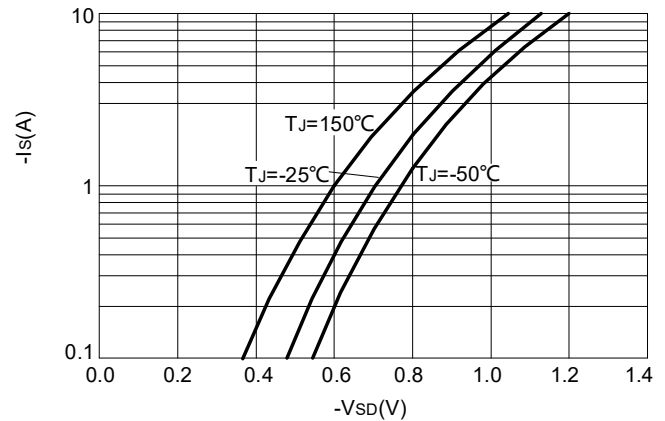


Figure 4: Body Diode Characteristics

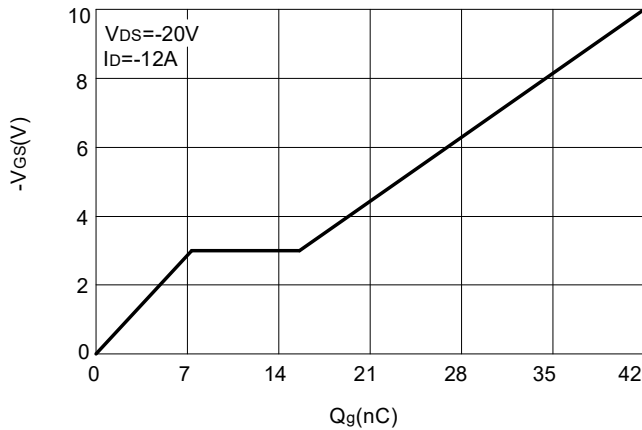


Figure 5: Gate Charge Characteristics

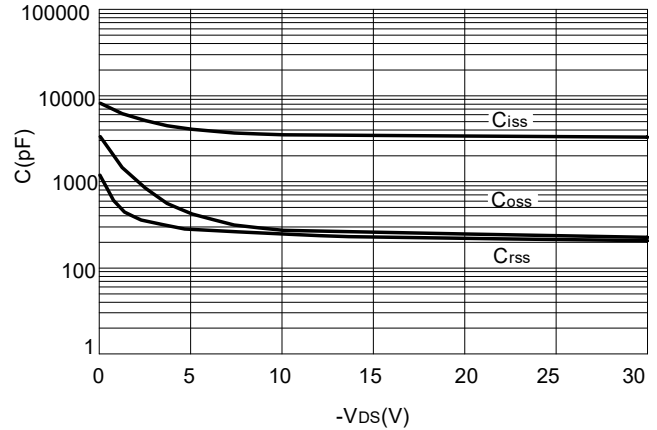


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

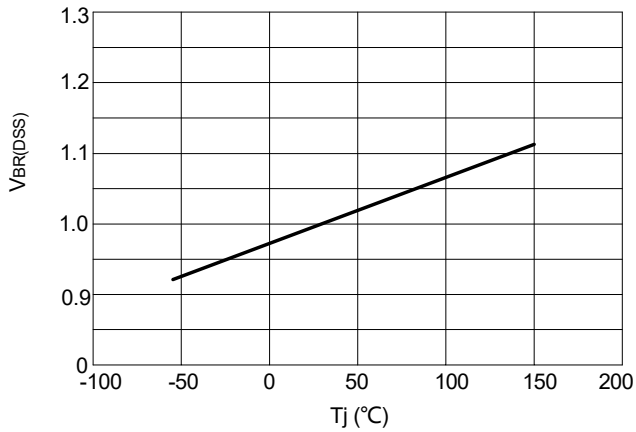


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

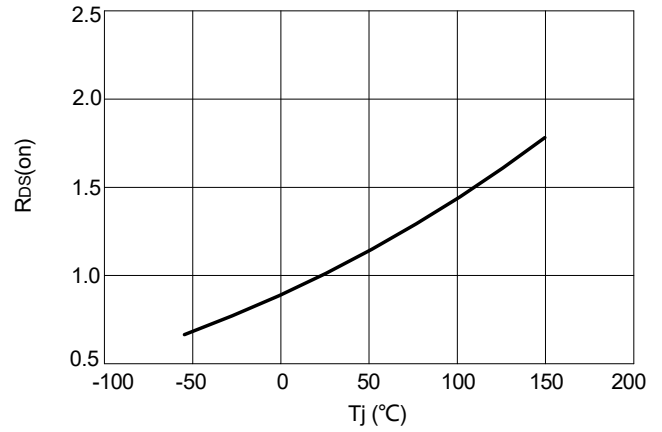


Figure 8: Normalized on Resistance vs. Junction Temperature

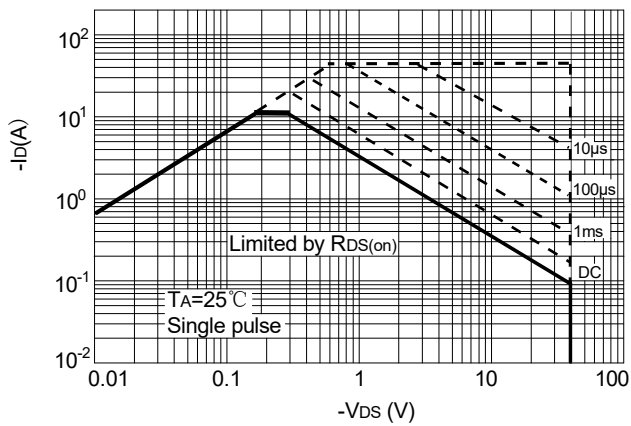


Figure 9: Maximum Safe Operating Area

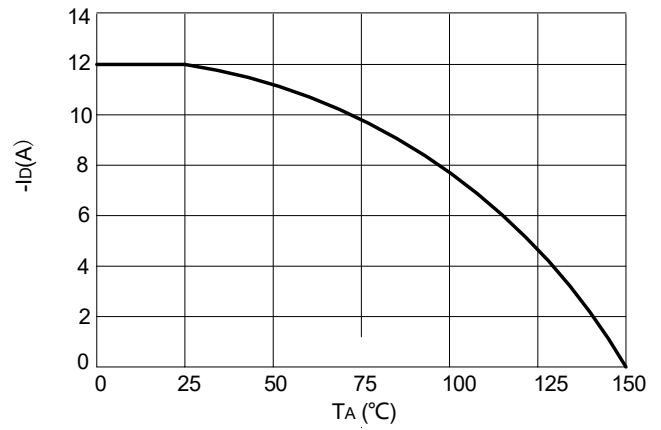


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

■ SOP8 PACKAGE OUTLINE DIMENSIONS

