

PRODUCT CHARACTERISTICS

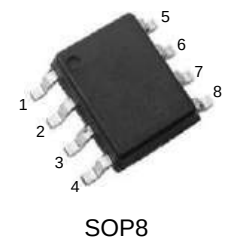
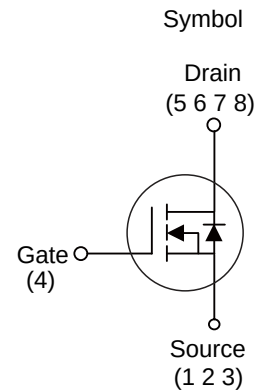
V_{DS}	30V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	10m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$)	14m Ω
I_D	14A

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	MOT3510S	SOP8	4000 pieces/Reel

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

Parameter	Symbol	Ratings	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	14	A
Drain Current Pulsed	I_{DM}	56	A
Avalanche Energy	E_{AS}	72	mJ
Power Dissipation	P_D	3.1	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}	40.3	$^{\circ}C/W$

Note: * EAS condition: $T_J=25^{\circ}C, V_{DS}=20V, V_G=10V, L=0.5mH, R_g=25\Omega$

■ 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	12	mΩ
		V _{GS} =4.5V,I _D =10 A	-	14	17	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.6	2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	2.7	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =5V,I _D =5A	-	8	-	S
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V f=1.0MHz	-	840	-	pF
Output Capacitance	C _{oss}		-	120	-	pF
Reverse Transfer Capacitance	C _{rss}		-	77	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =15V, I _D =14 A,R _G =6Ω	-	2.7	-	ns
Rise Time	t _r		-	3.5	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	12.5	-	ns
Fall Time	t _f		-	5.8	-	ns
Total Gate Charge	Q _g	I _D =14 A, V _{DS} =15V V _{GS} =10V	-	7.7	-	nC
Gate to Source Charge	Q _{gs}		-	1	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	2	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	14	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	56	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.75	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =14 A, T _j =25℃ dI/dt=100A/μs	-	16.6	-	ns
Reverse Recovery Charge	Q _{rr}		-	5.5	-	nC

■ TYPICAL CHARACTERISTICS

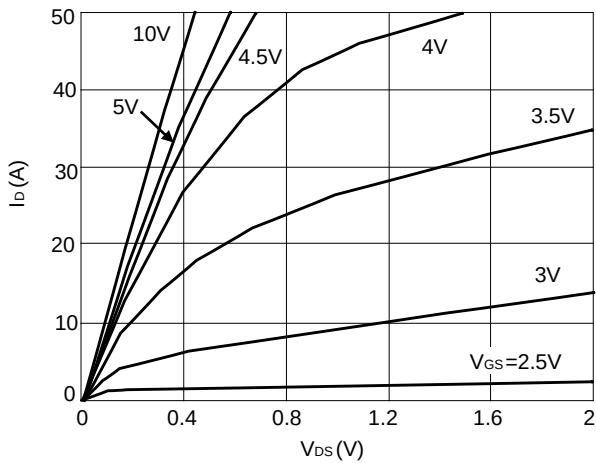


Figure 1: Saturation Characteristics

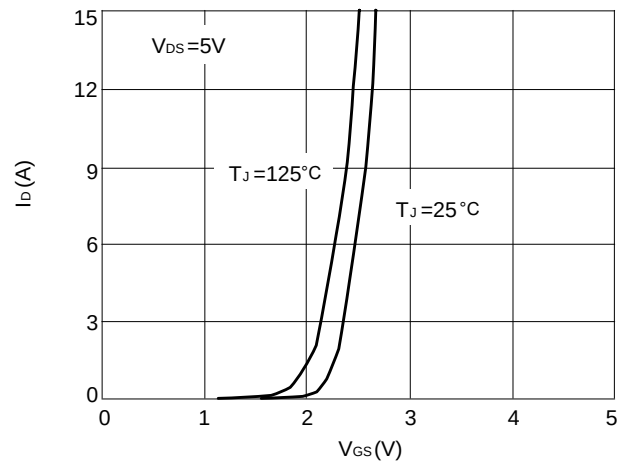


Figure 2: Transfer Characteristics

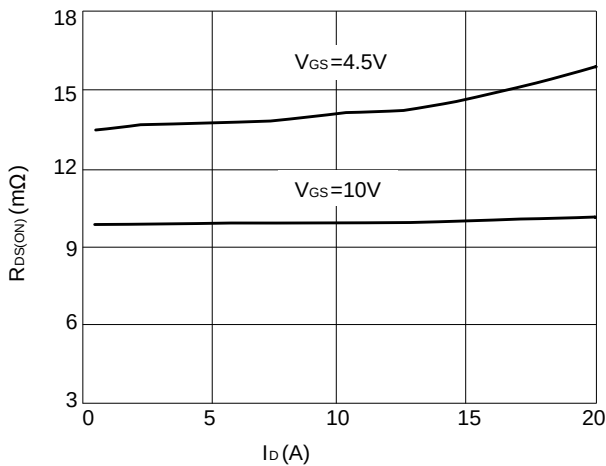


Figure 3: $R_{DS(ON)}$ vs. Drain Current

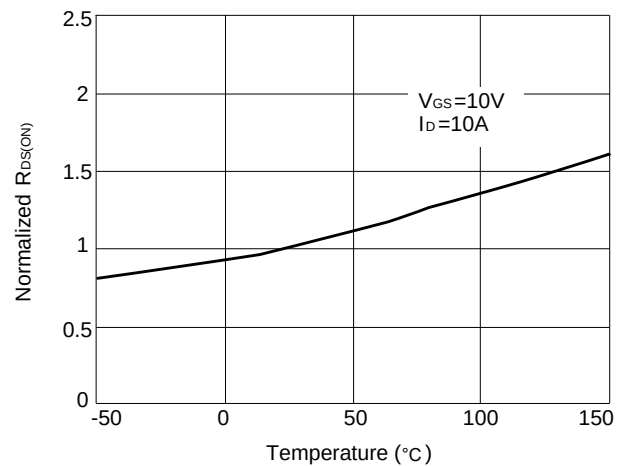


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

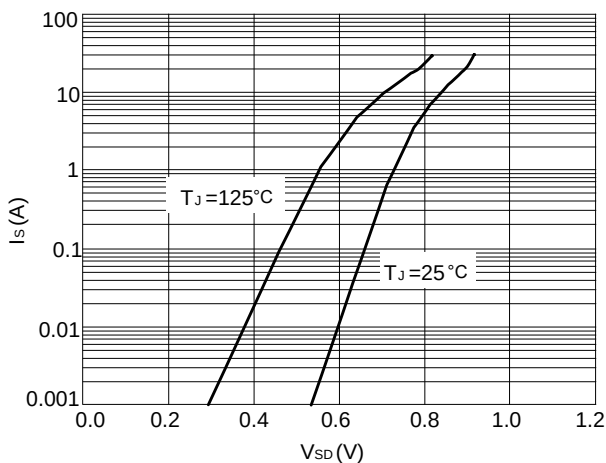


Figure 5: Body-diode Characteristics

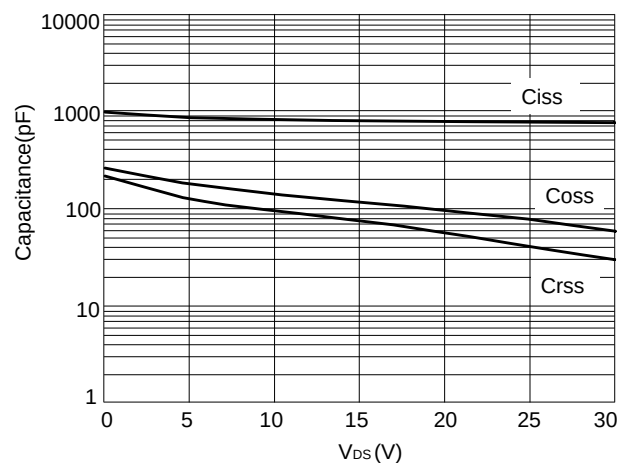


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

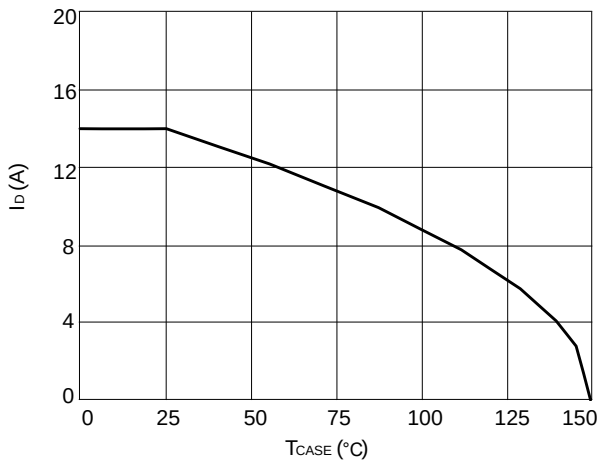


Figure 7: Current De-rating

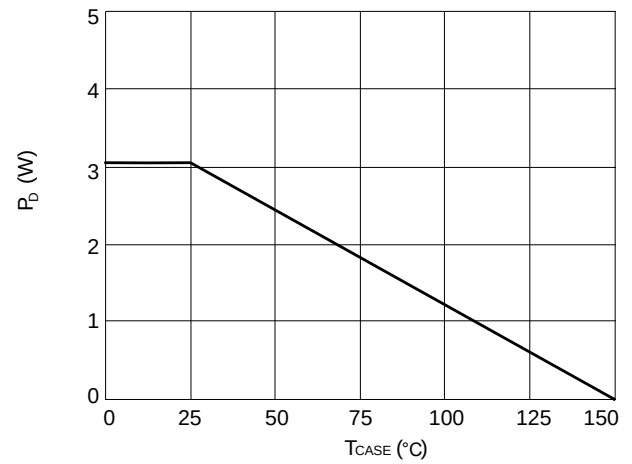


Figure 8: Power De-rating

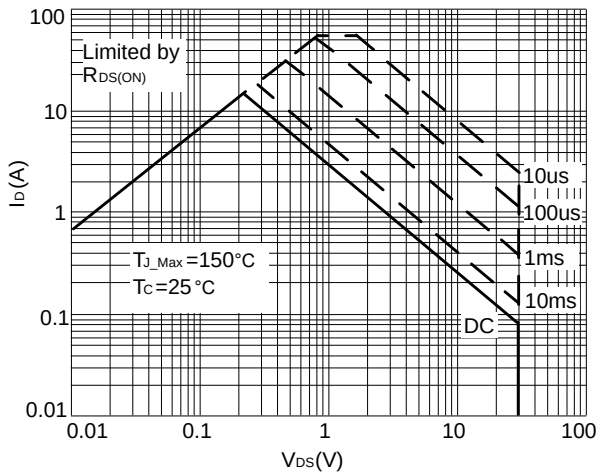


Figure 9: Maximum Safe Operating Area

■ SOP8 PACKAGE OUTLINE DIMENSIONS

