



**Electrical Characteristics** ( $T_J=25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V,$	-	-	1.0	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.6	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	$V_{GS}=10V, I_D=5A$	-	28	40	m $\Omega$
		$V_{GS}=4.5V, I_D=3A$	-	36	50	
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0MHz$	-	948	-	pF
$C_{oss}$	Output Capacitance		-	58.5	-	pF
$C_{riss}$	Reverse Transfer Capacitance		-	49.4	-	pF
$Q_g$	Total Gate Charge	$V_{DS}=30V, I_D=2.5A,$ $V_{GS}=10V$	-	20.3	-	nC
$Q_{gs}$	Gate-Source Charge		-	3.7	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	5.3	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{DS}=30V, I_D=5A,$ $R_G=1.8\Omega, V_{GS}=10V$	-	7.6	-	ns
$t_r$	Turn-on Rise Time		-	20	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	15	-	ns
$t_f$	Turn-off Fall Time		-	24	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	15	A
$I_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	46	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=5A$	-	-	1.2	V
$t_{rr}$	Body Diode Reverse Recovery Time	$I_F=5A, di/dt=100A/\mu s$	-	29	-	ns
$Q_{rr}$	Body Diode Reverse Recovery Charge		-	43	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition :  $T_J=25^\circ\text{C}, V_{DD}=30V, V_G=10V, L=0.5mH, R_G=25\Omega, I_{AS}=8.7A$ 3. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 0.5\%$

Typical Performance Characteristics

Figure 1: Output Characteristics

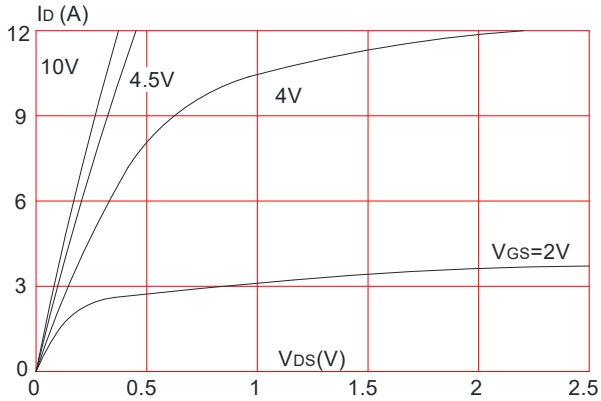


Figure 2: Typical Transfer Characteristics

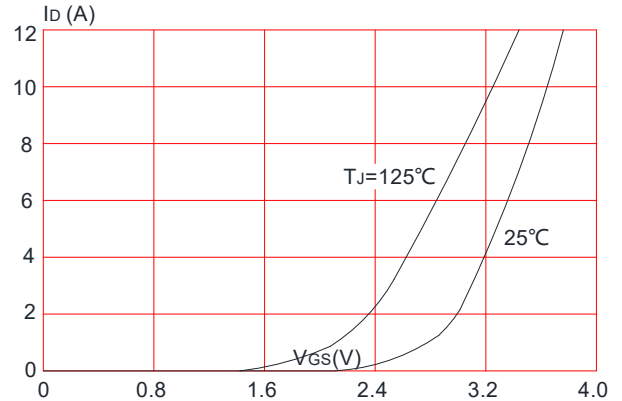


Figure 3: On-resistance vs. Drain Current

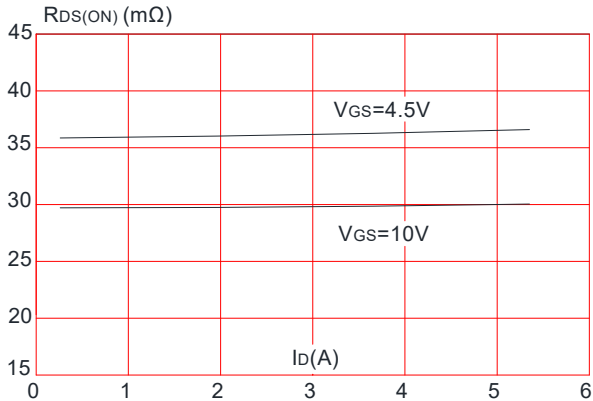


Figure 4: Body Diode Characteristics

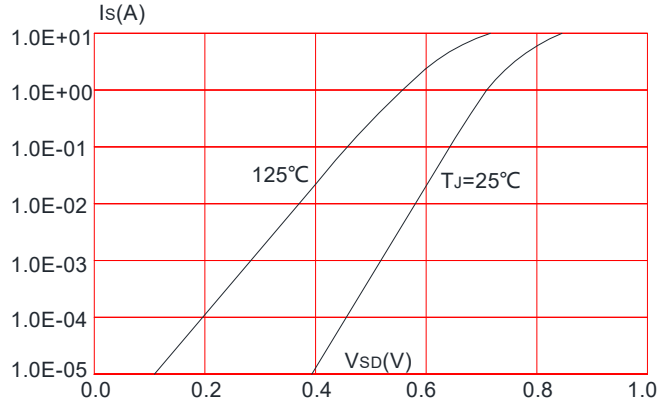


Figure 5: Gate Charge Characteristics

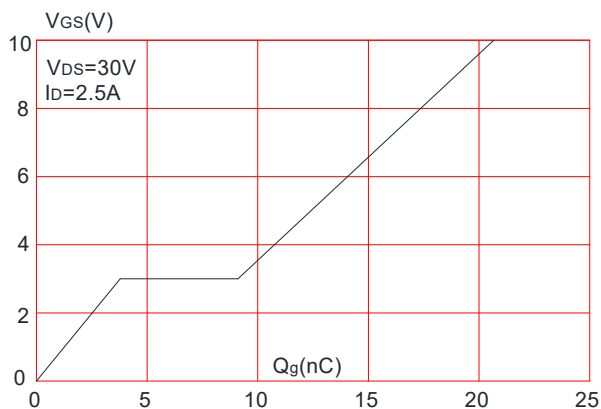
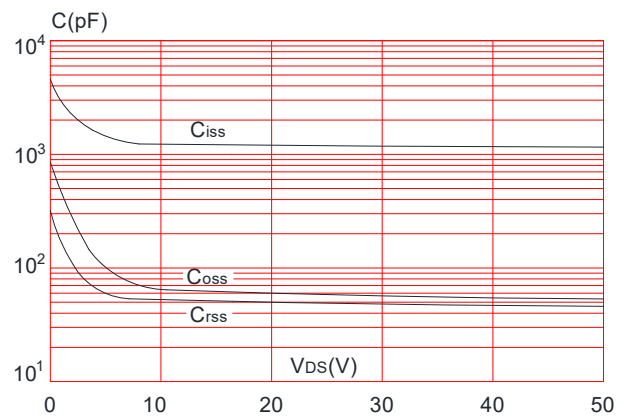
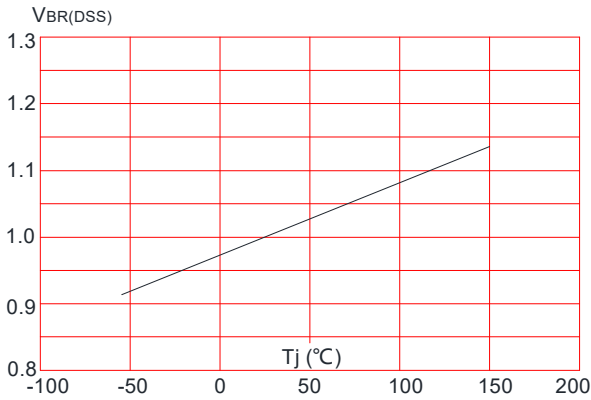


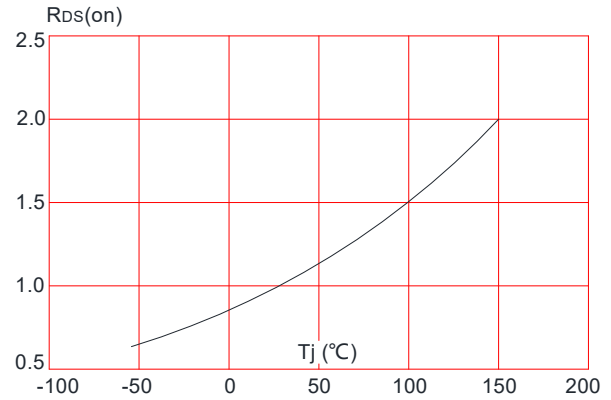
Figure 6: Capacitance Characteristics



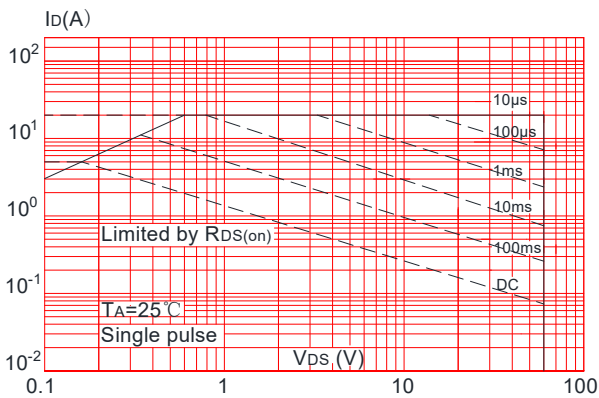
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



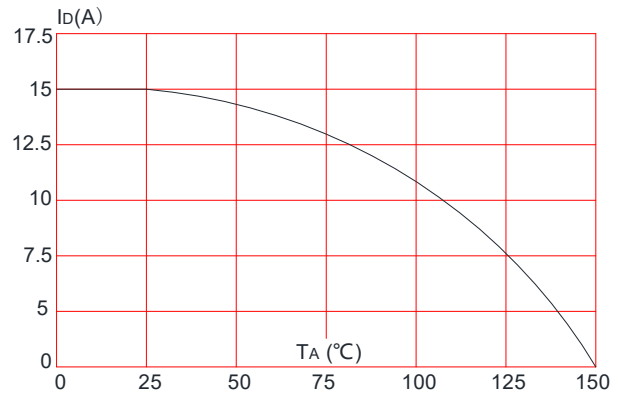
**Figure 8:** Normalized on Resistance vs. Junction Temperature



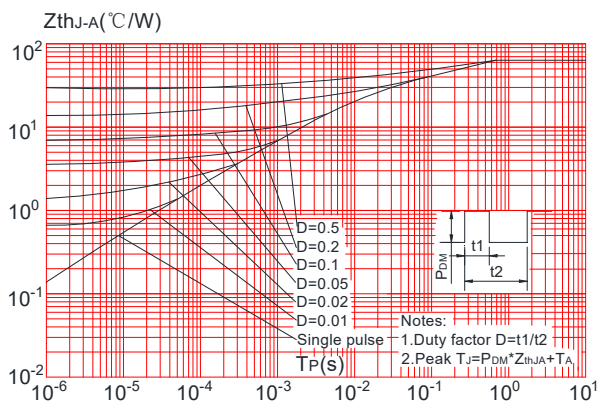
**Figure 9:** Maximum Safe Operating Area



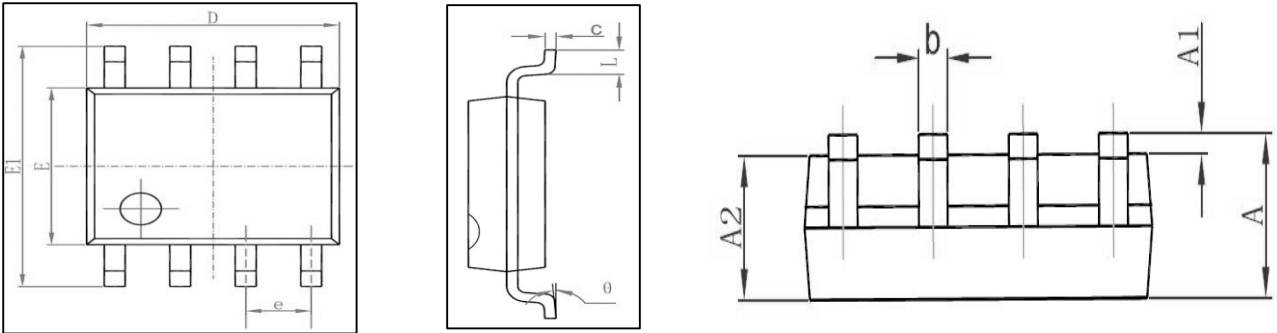
**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature



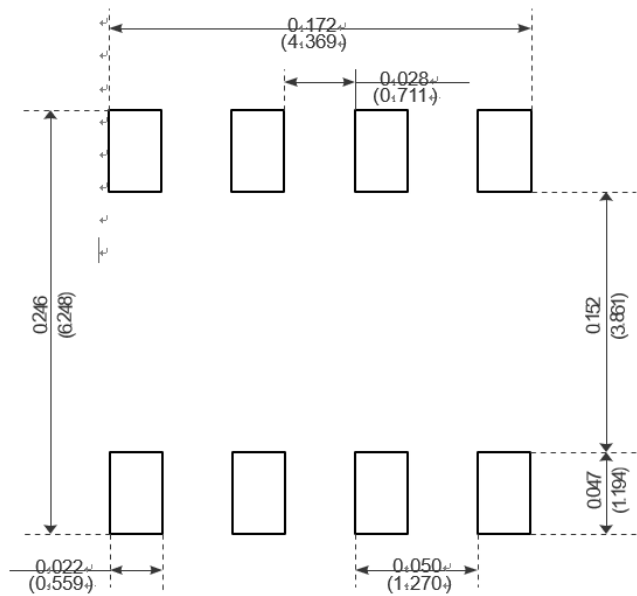
**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



# Package Mechanical Data:SOP-8L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Recommended Minimum Pads