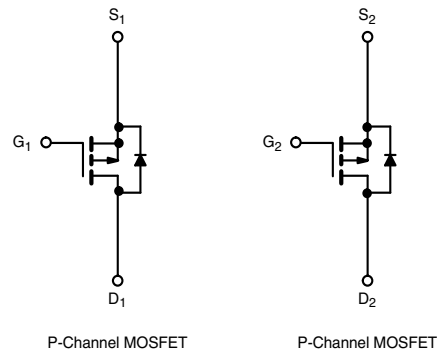


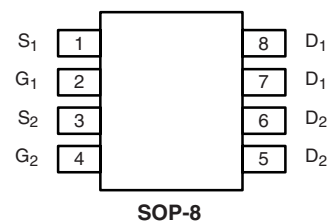
**PRODUCT SUMMARY**

- $V_{DS} (V) = -60V$
- $R_{DS(ON)} < 120m\Omega$  ( $V_{GS} = -10V$ )
- $R_{DS(ON)} < 150m\Omega$  ( $V_{GS} = -4.5V$ )



P-Channel MOSFET

P-Channel MOSFET



SOP-8

**ABSOLUTE MAXIMUM RATINGS**  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise noted

Parameter	Symbol	10 s	Steady State	Unit	
Drain-Source Voltage	$V_{DS}$	- 60		V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$			
Continuous Drain Current ( $T_J = 150\text{ }^\circ\text{C}$ ) <sup>a</sup>	$I_D$	$T_A = 25\text{ }^\circ\text{C}$	- 3.1	- 2.4	A
		$T_A = 70\text{ }^\circ\text{C}$	- 2.6	- 2.0	
Pulsed Drain Current (10 $\mu\text{s}$ Pulse Width)	$I_{DM}$	- 25			
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	- 2	- 1.1		
Avalanche Current	$I_{AS}$	L = 0.1 mH	15		
Single Pulse Avalanche Energy			$E_{AS}$	11	
Maximum Power Dissipation <sup>a</sup>	$P_D$	$T_A = 25\text{ }^\circ\text{C}$	2.4	1.4	W
		$T_A = 70\text{ }^\circ\text{C}$	1.7	0.95	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	- 55 to 175		$^\circ\text{C}$	

**THERMAL RESISTANCE RATINGS**

Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient <sup>a</sup>	$R_{thJA}$	$t \leq 10\text{ s}$	53	62.5	$^\circ\text{C/W}$
		Steady State	85	110	
Maximum Junction-to-Foot	$R_{thJF}$	30	37		

Notes:

a. Surface Mounted on 1" x 1" FR4 board.

**SPECIFICATIONS**  $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise noted

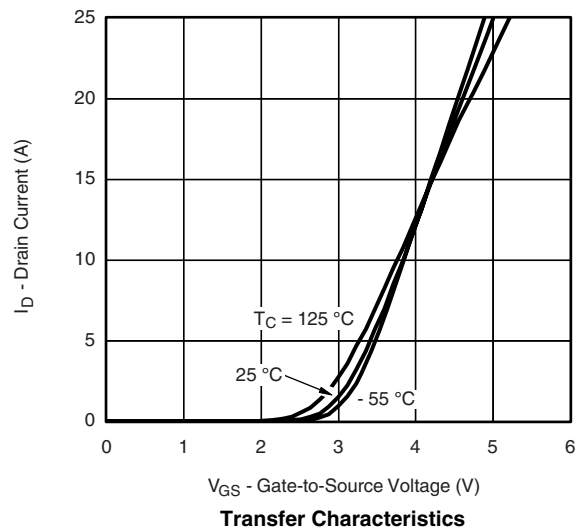
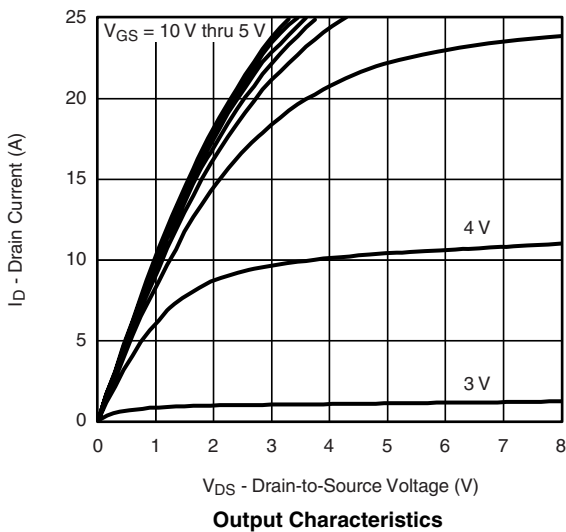
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}$	-1		-3	V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -60\text{ V}, V_{GS} = 0\text{ V}$			-1	$\mu\text{A}$
		$V_{DS} = -60\text{ V}, V_{GS} = 0\text{ V}, T_J = 70\text{ }^\circ\text{C}$			-10	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = -5\text{ V}, V_{GS} = -10\text{ V}$	-25			A
Drain-Source On-State Resistance <sup>a</sup>	$R_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -3.1\text{ A}$		100	120	m $\Omega$
		$V_{GS} = -4.5\text{ V}, I_D = -0.2\text{ A}$		126	150	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = -15\text{ V}, I_D = -3.1\text{ A}$		8.5		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = -2\text{ A}, V_{GS} = 0\text{ V}$		-0.8	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = -30\text{ V}, V_{GS} = -10\text{ V}, I_D = -3.1\text{ A}$		14.5	22	nC
Gate-Source Charge	$Q_{gs}$			2.2		
Gate-Drain Charge	$Q_{gd}$			3.7		
Gate Resistance	$R_g$	$f = 1\text{ MHz}$		14		$\Omega$
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -30\text{ V}, R_L = 30\text{ }\Omega$ $I_D \cong -1\text{ A}, V_{GEN} = -10\text{ V}, R_g = 6\text{ }\Omega$		10	15	ns
Rise Time	$t_r$			15	22	
Turn-Off Delay Time	$t_{d(off)}$			50	75	
Fall Time	$t_f$			35	55	
Source-Drain Reverse Recovery Time	$t_{rr}$		$I_F = -2\text{ A}, dI/dt = 100\text{ A}/\mu\text{s}$		30	

Notes:

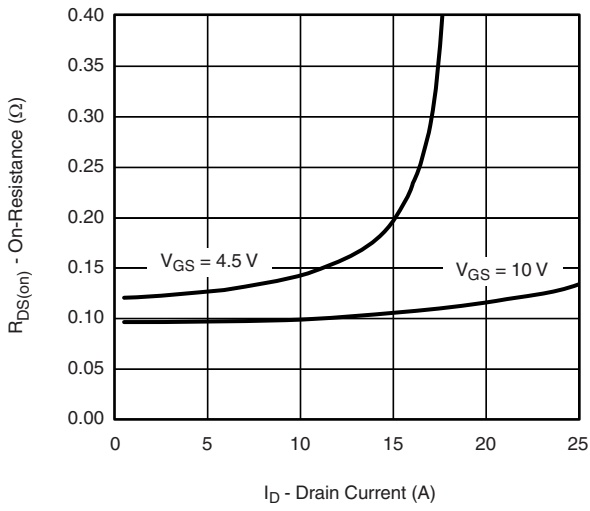
- a. Pulse test; pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$ .
- b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

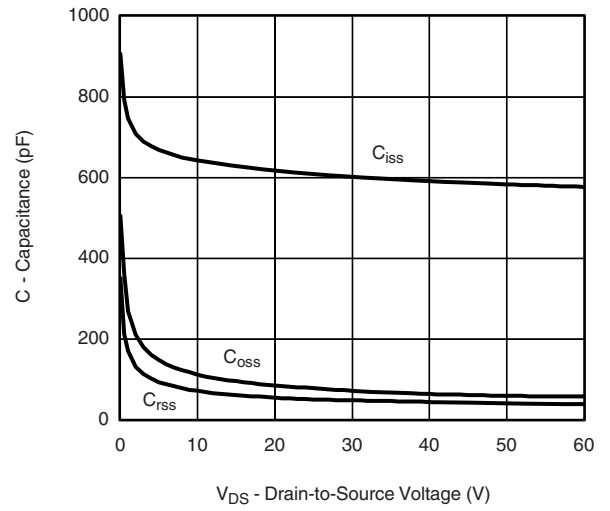
**TYPICAL CHARACTERISTICS**  $25\text{ }^\circ\text{C}$ , unless otherwise noted



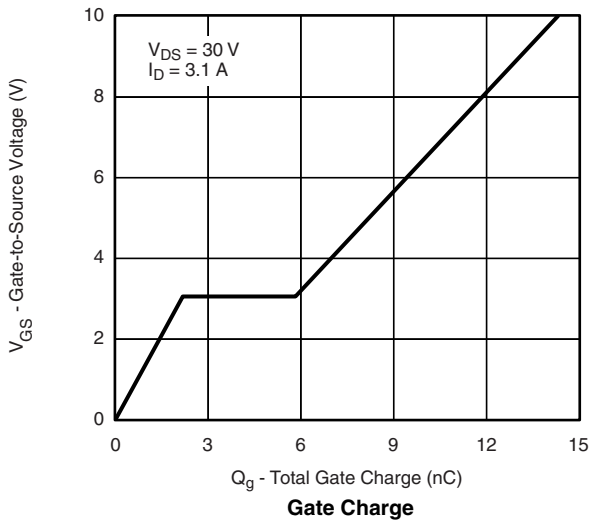
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



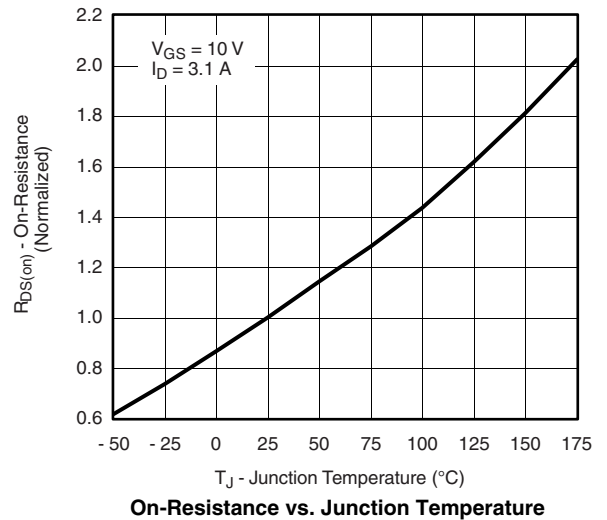
On-Resistance vs. Drain Current



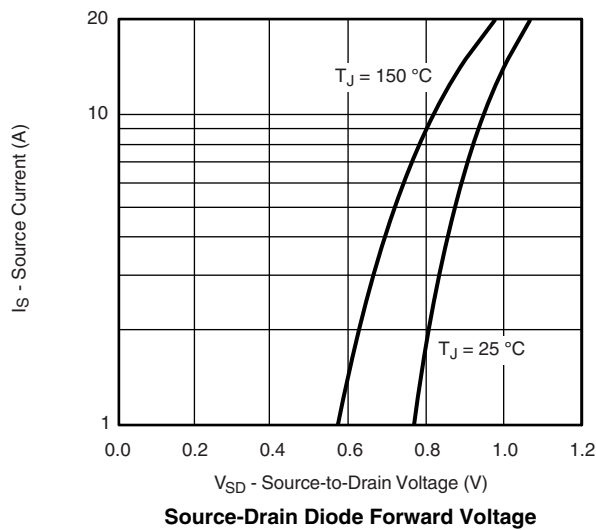
Capacitance



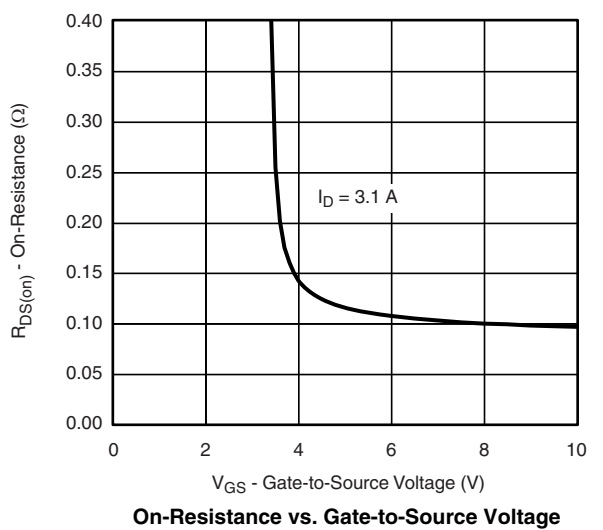
Gate Charge



On-Resistance vs. Junction Temperature

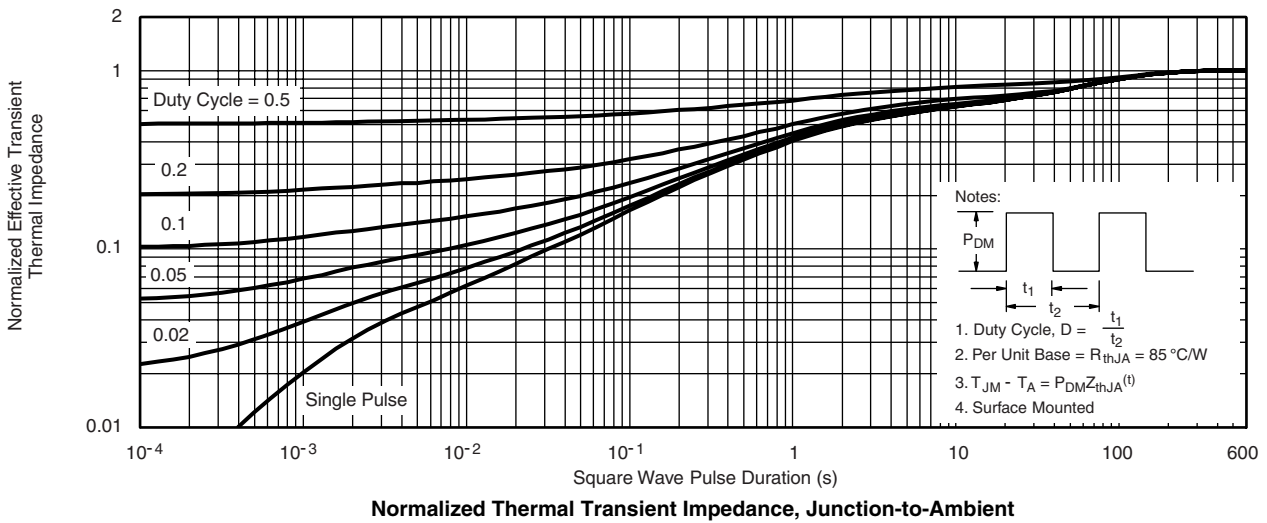
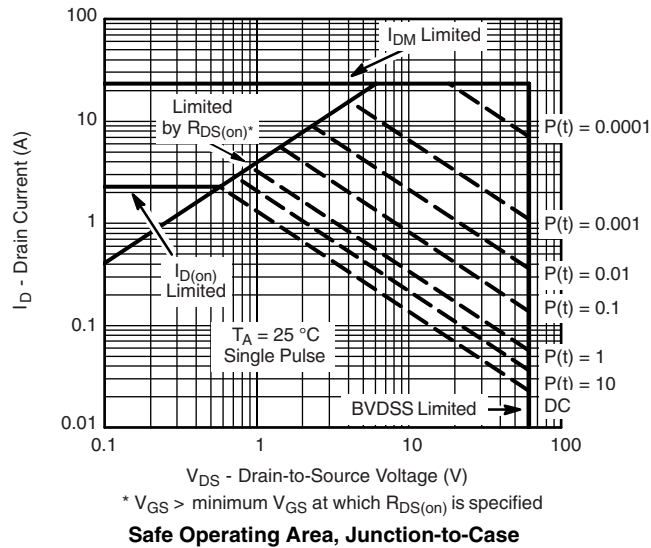
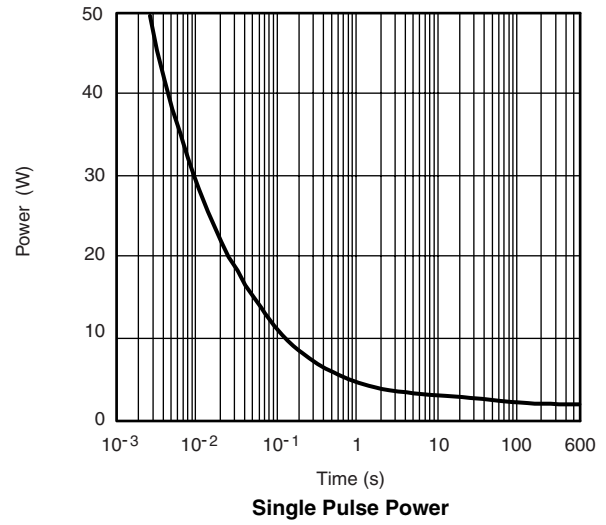
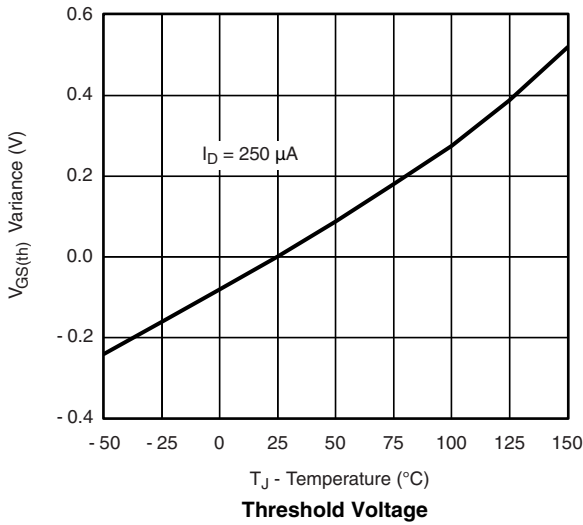


Source-Drain Diode Forward Voltage

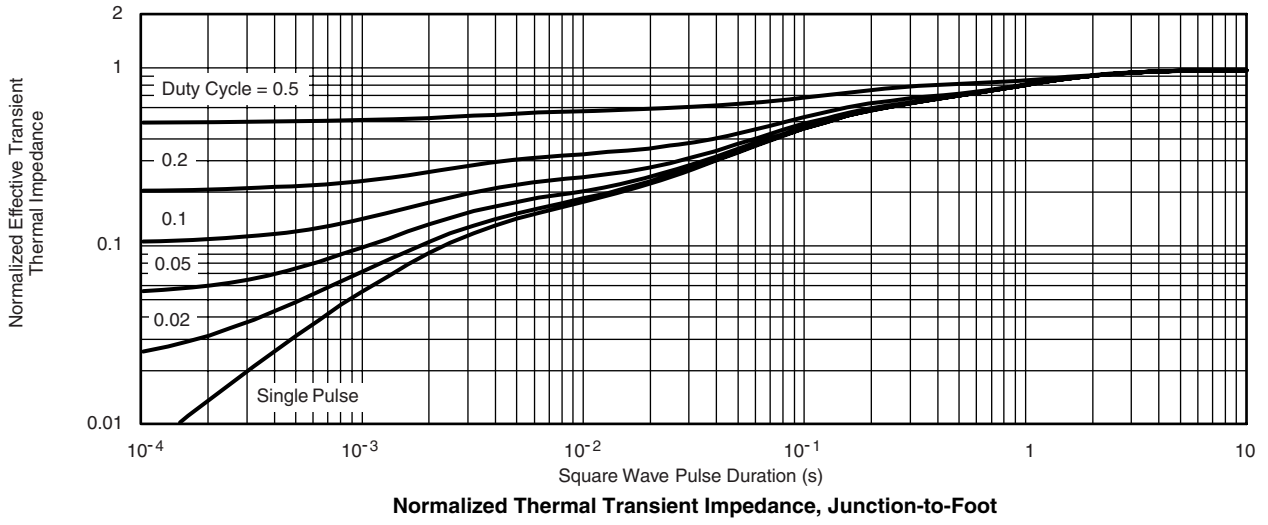


On-Resistance vs. Gate-to-Source Voltage

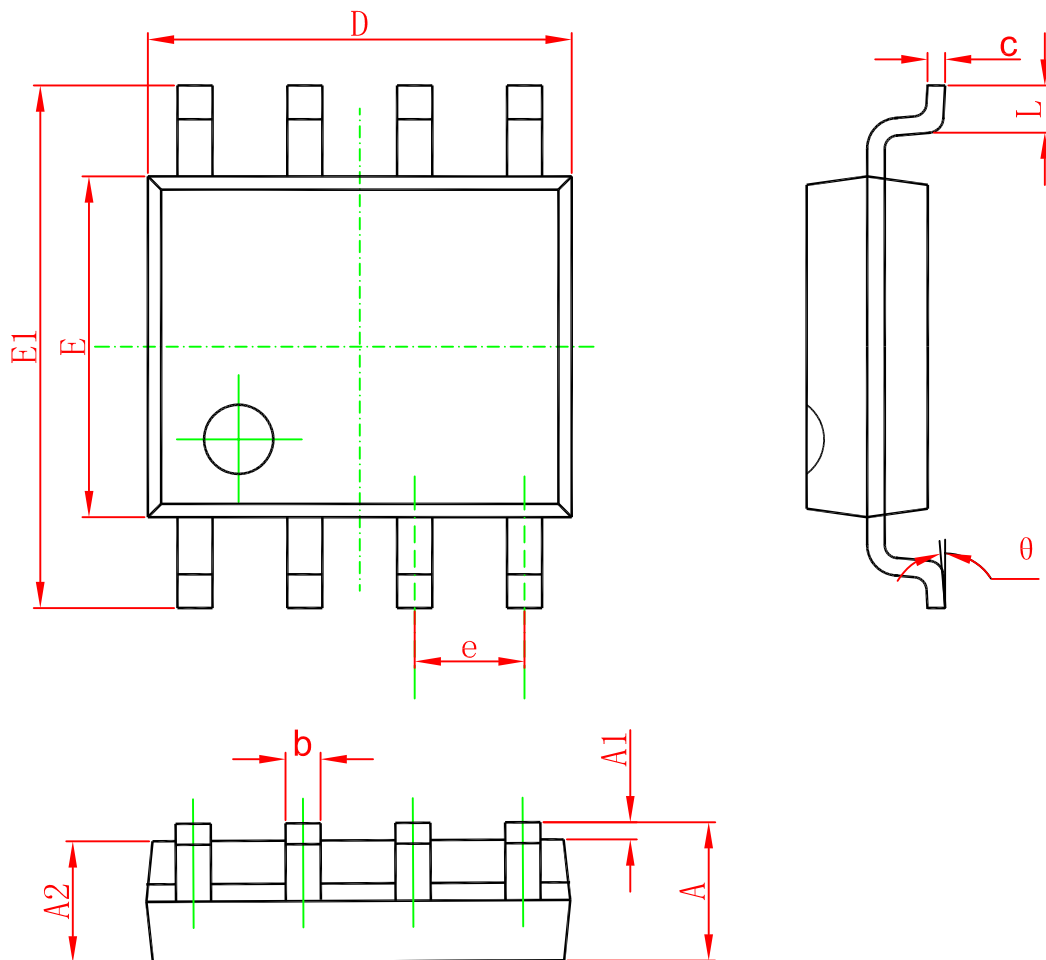
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

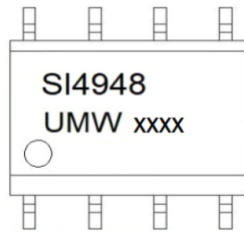


SOP-8



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°

**Marking**



**Ordering information**

Order code	Package	Baseqty	Deliverymode
UMW SI4948BEY	SOP-8	3000	Tape and reel

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