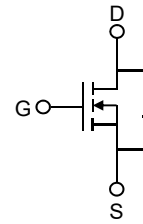


Description

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
60	9.8@ $V_{GS} = 10V$	13.7
	12.8@ $V_{GS} = 4.5V$	


Feature

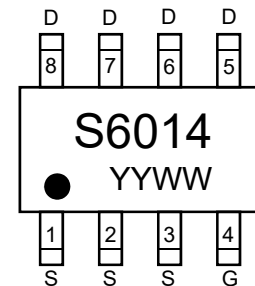
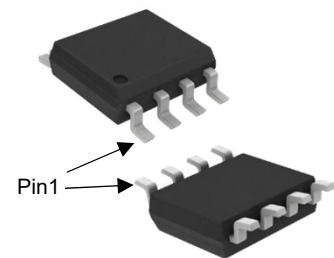
- Low Gate Charge
- Excellent $R_{DS(ON)}$
- Fast Switching Speed

Applications

- Load Switch
- DC-DC Converters
- Power Management Functions

Mechanical Data

- Case: SOP-8L
- Case Material: "Green" Molding Compound.
UL-Flammability Classification Rating 94V-0.
- Weight: 0.060 grams (approximate).

Circuit Diagram

Marking (Top View)

SOP-8L
Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ¹⁾	I_D	$T_C=25^\circ C$	13.7
		$T_C=100^\circ C$	11
Pulsed Drain Current ²⁾	I_{DM}	45	A
Single Pulse Avalanche Current @ L = 0.3mH	I_{AS}	15	A
Single Pulse Avalanche Energy @ L = 0.3mH	E_{AS}	34	mJ
Total Power Dissipation ⁴⁾	P_D	$T_C=25^\circ C$	3.3
		$T_C=100^\circ C$	2.1
Thermal Resistance , Junction-to-Ambient ³⁾	$R_{\theta JA}$	65	$^\circ C/W$
Thermal Resistance , Junction-to-Ambient ⁴⁾	$R_{\theta JA}$	38	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$

Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$	-	-	1.0	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics ⁵⁾						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=12A$	-	7.6	9.8	m Ω
		$V_{GS}=4.5V, I_D=6A$	-	9.8	12.8	
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=12A$	-	60	-	S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=2A$	-	0.72	1.0	V
Dynamic Parameters ⁶⁾						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$	-	1085	-	pF
Output Capacitance	C_{oss}		-	312	-	
Reverse Transfer Capacitance	C_{rss}		-	8.7	-	
Switching Parameters ⁶⁾						
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=30V, R_G=6\Omega, I_D=12A$	-	5.2	-	ns
Turn-on Rise Time	t_r		-	8.5	-	
Turn-Off Delay Time	$t_{d(off)}$		-	32	-	
Turn-Off Fall Time	t_f		-	11	-	
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=12A, V_{GS}=10V$	-	17	-	nC
Gate-Source Charge	Q_{gs}		-	2.5	-	
Gate-Drain Charge	Q_{gd}		-	2.6	-	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	-	1.9	-	Ω
Drain-Source Diode Characteristics ⁶⁾						
Body Diode Reverse Recovery Time	t_{rr}	$I_F=12A, di/dt=100A/\mu s, T_J=25^\circ C$	-	30	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	14	-	nC
Diode Forward Current	I_S	-	-	-	3.3	A

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Device surface mounted on FR4 PCB measured at steady state.
4. Device surface mounted on FR4 PCB measured at $t \leq 10sec$.
5. Measured under pulsed conditions. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
6. Guaranteed by design, not subject to production

Typical Characteristics

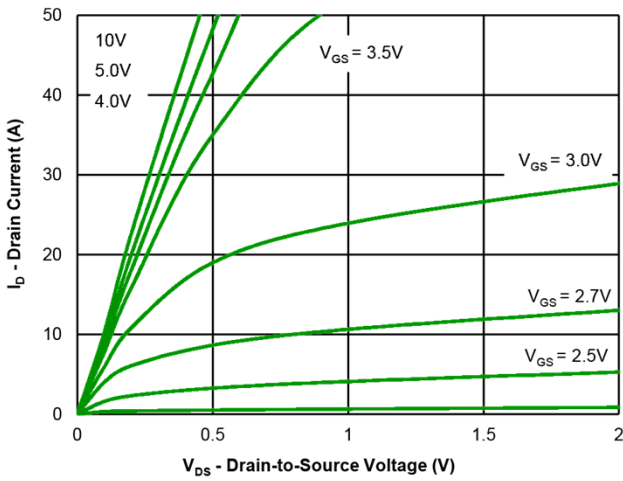


Figure 1: Output Characteristics

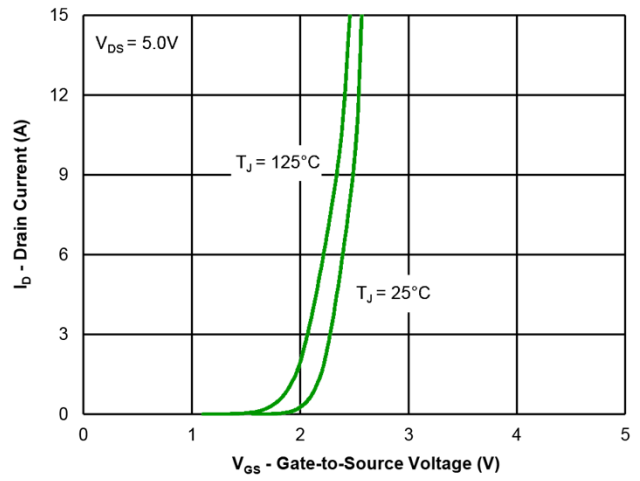


Figure 2: Transfer Characteristics

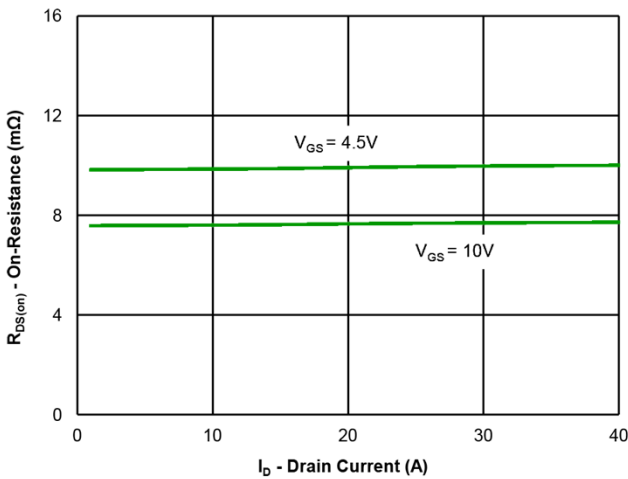


Figure 3: On-Resistance vs. Gate-Source Voltage

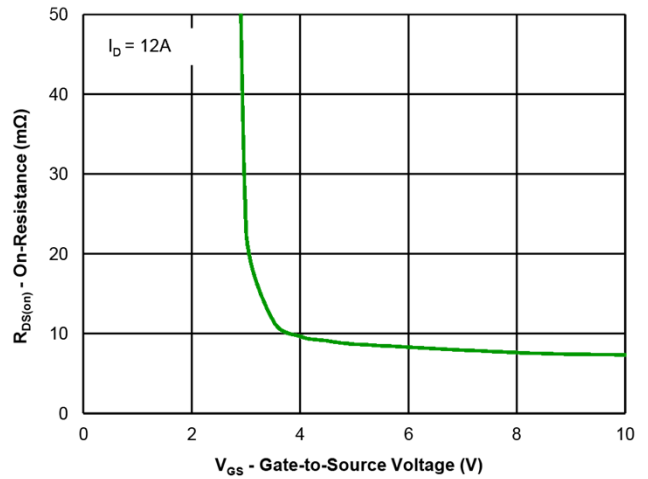


Figure 4: On-Resistance vs. Gate-Source Voltage

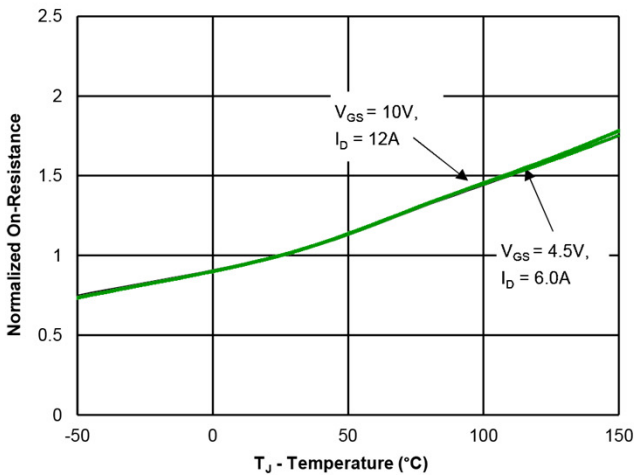


Figure 5: On-Resistance vs. Junction Temperature

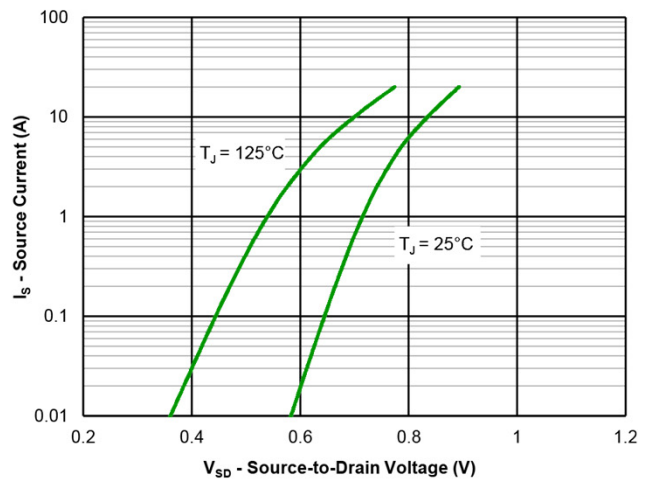


Figure 6: Source-Drain Diode Forward Voltage

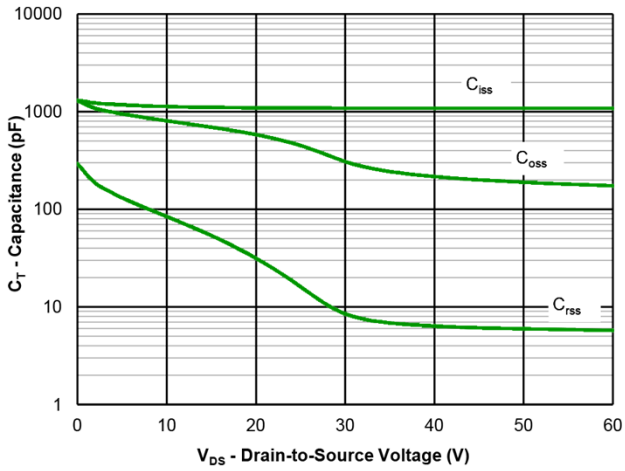


Figure 7: Capacitance Characteristics

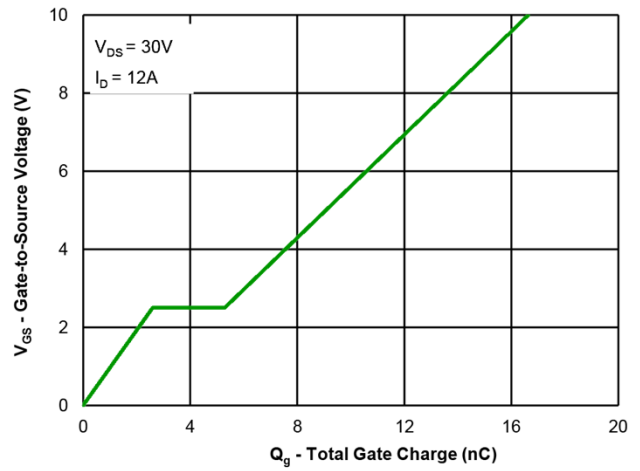


Figure 8: Gate Charge Characteristics

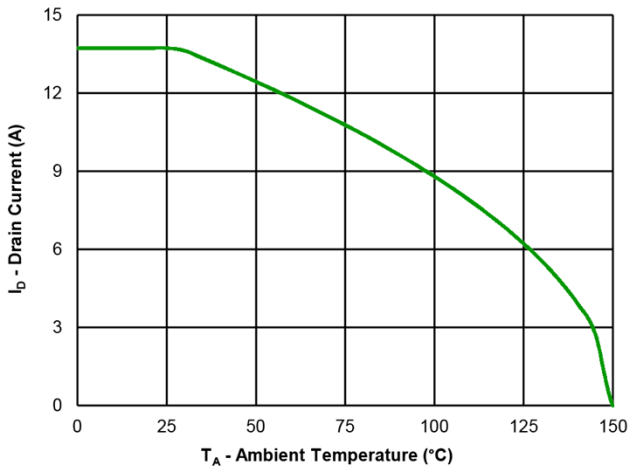


Figure 9: Current Derating

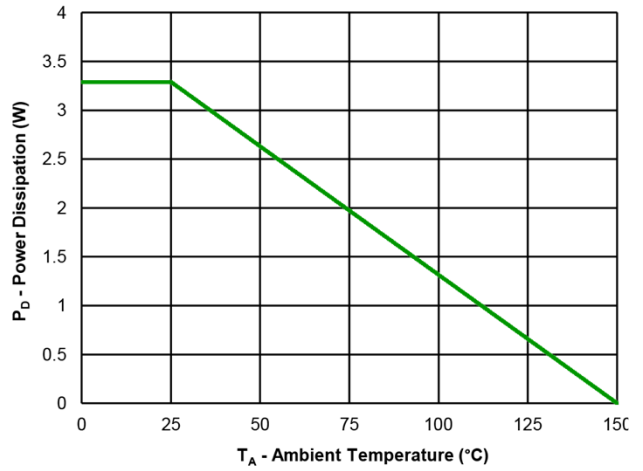


Figure 10: Power Derating

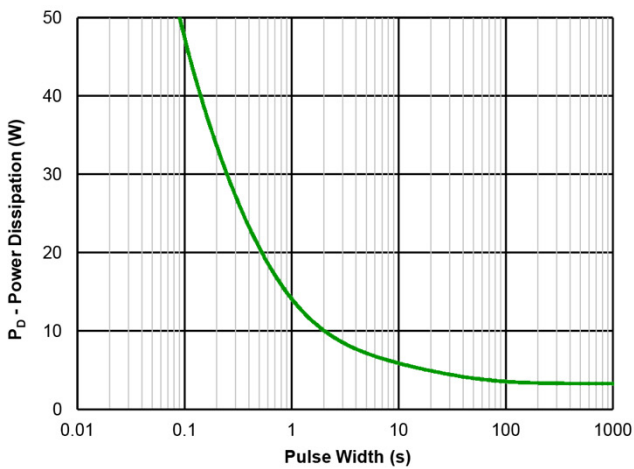


Figure 11: Single Pulse Power, Junction-to-Ambient

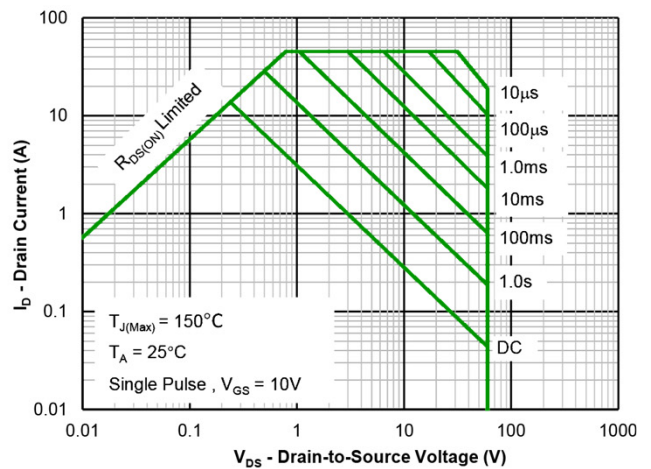


Figure 12: Safe Operating Area

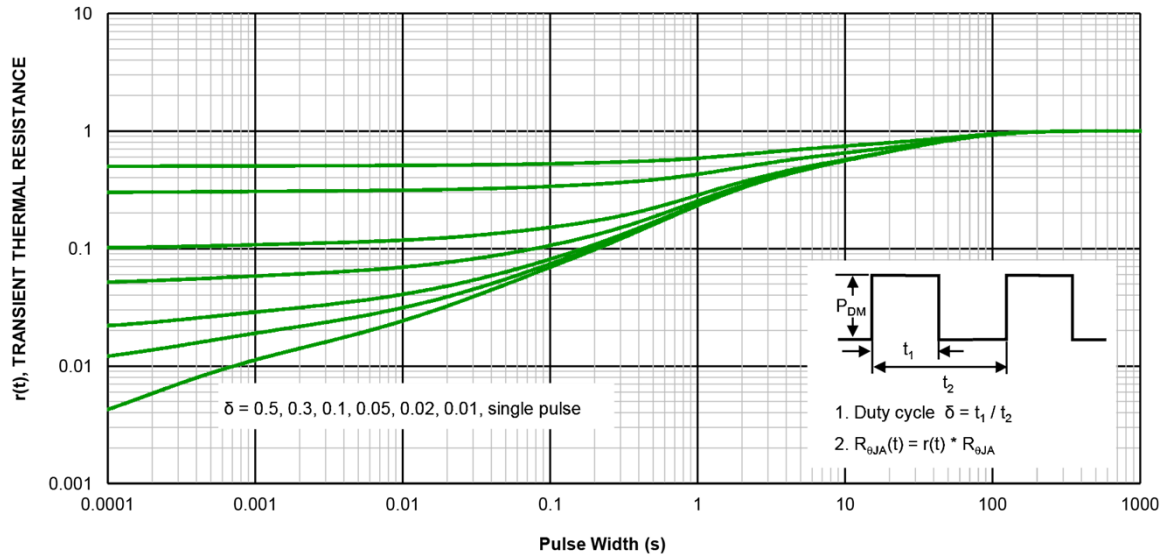
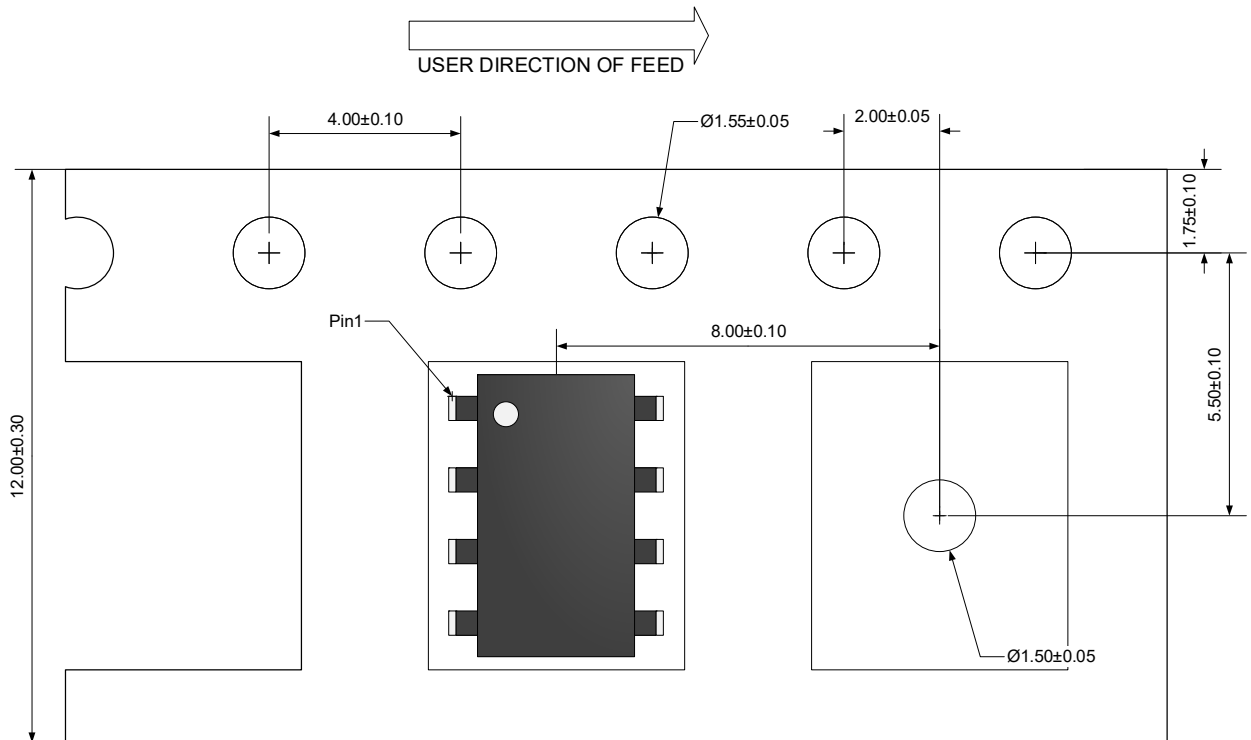


Figure 13: Normalized Thermal Transient Impedance

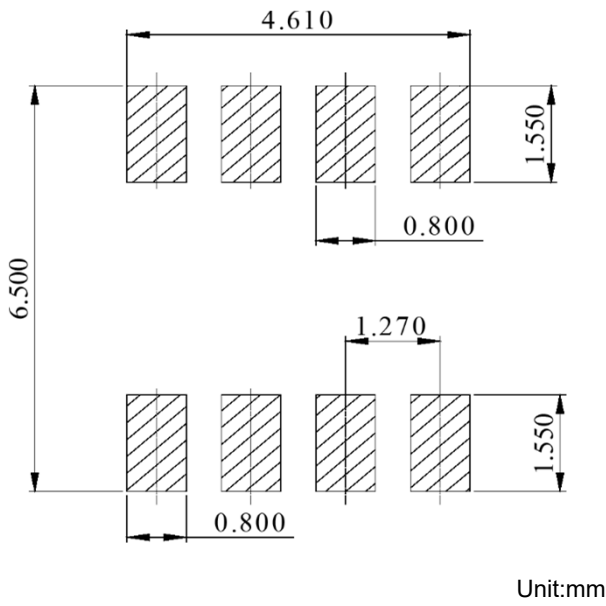
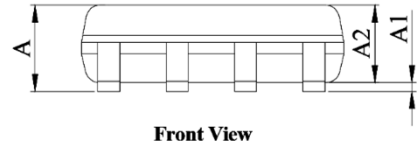
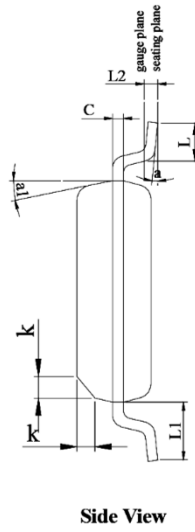
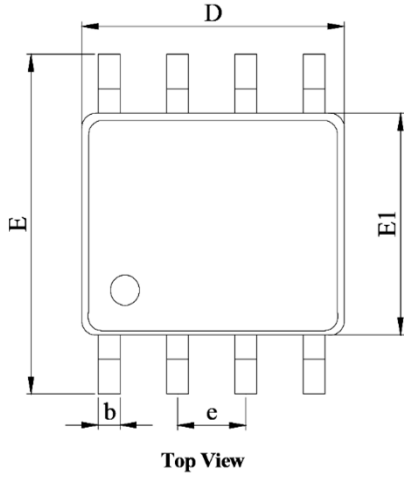
Ordering information

Device	Package	Reel	Shipping
PSM8P60V14	SOP-8L(Pb-Free)	13"	4000 / Tape & Reel

Load with information



Product Dimension (SOP-8L)




Suggested PCB Layout

Unit:mm

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A1	0.05	0.25	0.002	0.010
A2	1.35	1.50	0.053	0.059
b	0.35	0.50	0.014	0.020
c	0.17	0.25	0.007	0.010
D	4.70	5.10	0.185	0.201
E	5.80	6.20	0.228	0.244
E1	3.70	4.10	0.146	0.161
e	1.27 BSC.		0.050 BSC.	
L	0.40	0.80	0.016	0.031
L1	1.04 Ref.		0.041 Ref.	
L2	0.25 BSC.		0.010 BSC.	
k	0.30	0.50	0.012	0.020
a	0°	8°	0°	8°
a1	8°	14°	8°	14°


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