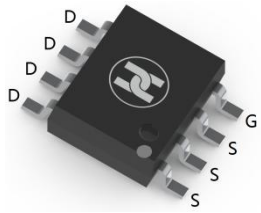
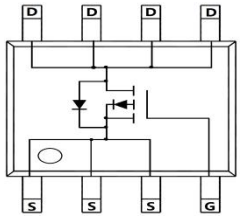
LOW VOLTAGE MOSFET (P-CHANNEL)



SOP-8



FEATURES

- Ultra low on-resistance:V_{DS}=-30V,I_D=-5.1A,$R_{DS(ON)}$≤85mΩ@V_{GS}=-10V
- Ultra low gate charge
- For load switch or in PWM applications
- Surface Mount device

MECHANICAL DATA

- Case: SOP-8
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.3 grams (approximate)

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-30	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current	I_D	-5.1	A
Pulsed drain current	I_{DM}	-20	A
Power dissipation	P_D	2.5	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	50	°C/W
Junction temperature	T_J	150	°C
Storage temperature	T_{STG}	-55 ~+150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Off Characteristics						
Drain-Source breakdown voltage	$V_{(BR)DSS}$	-30			V	V_{GS}=0V, I_D=-250μA
Zero gate voltage drain current	I_{DSS}			-1	μA	V_{DS}=-24V, V_{GS}=0V
Gate-body leakage current	I_{GSS}			±100	nA	V_{DS}=0V, V_{GS}=±20V
On Characteristics						
Gate-threshold voltage	$V_{GS(th)}$*	-1		-3	V	V_{DS}=V_{GS}, I_D=-250μA
Drain-source on-resistance	$R_{DS(ON)}$*		46	53	mΩ	V_{GS}=-10V, I_D=-5.1A
			70	85	mΩ	V_{GS}=-4.5V, I_D=-4.2A
Forward transconductance	g_{FS}*	4	7		S	V_{DS}=-15V, I_D=-4.5A
Drain-Source Diode Characteristics						
Diode forward voltage	V_{SD}			-1.2	V	I_S=-1.7A, V_{GS}=0V
Dynamic Characteristics						
Input capacitance	C_{iss}		1040		pF	V_{DS}=-15V, V_{GS}=0V, f=1MHz
Output capacitance	C_{oss}		420		pF	
Reverse transfer capacitance	C_{rss}		150		pF	
Switching Characteristics						
Total gate charge	Q_g		12		nC	V_{GS}=-10V,V_{DS}=-15V,I_D=-5.1A
Gate-source charge	Q_{gs}		2.2		nC	
Gate-drain charge	Q_{gd}		3		nC	
Turn-on delay time	$t_{d(on)}$		15		nS	V_{GS}=-10V, V_{DD}=-15V, R_{GEN}=6Ω, I_D=-1A
Turn-on rise time	t_r		13		nS	
Turn-off delay time	$t_{d(off)}$		58		nS	
Turn-off fall time	t_f		21		nS	

*Pulse test ; Pulse width ≤300μs, Duty cycle ≤2% .

LOW VOLTAGE MOSFET (P-CHANNEL)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

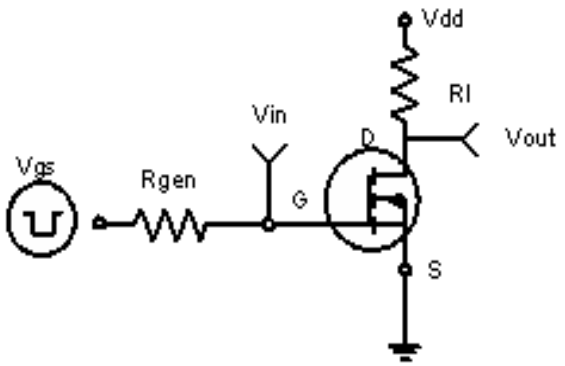


Figure 1:Switching Test Circuit

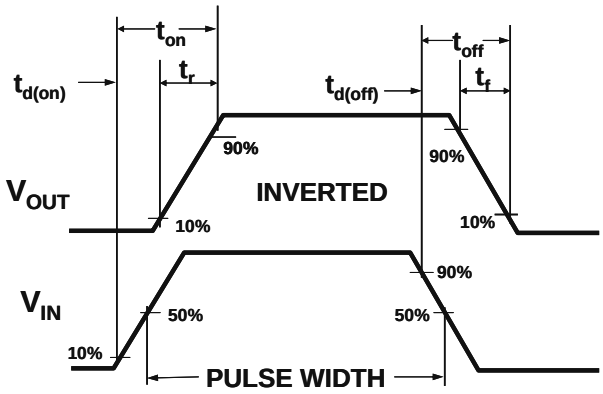


Figure 2:Switching Waveforms

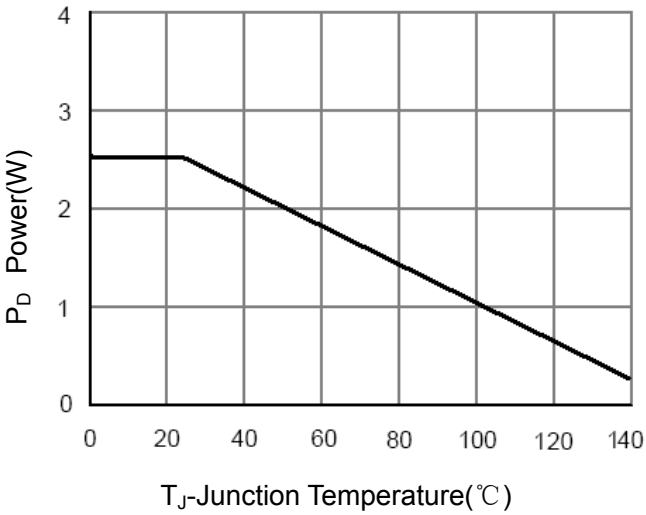


Figure 3 Power Dissipation

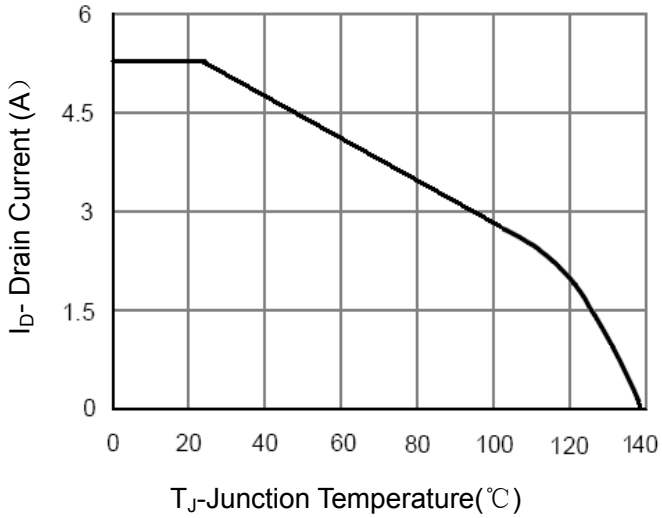


Figure 4 Drain Current

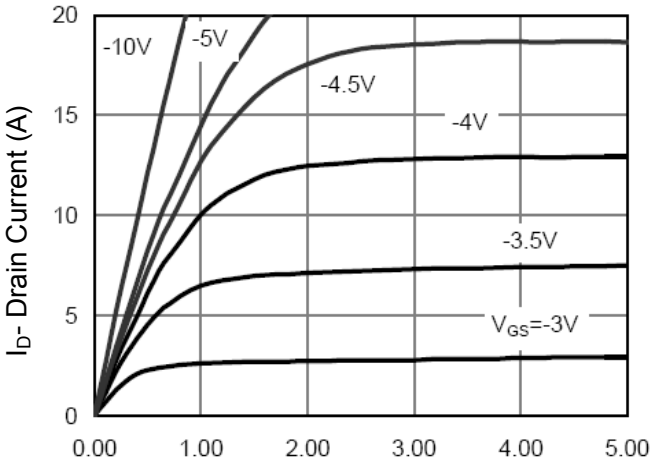


Figure 5 Output CHARACTERISTICS

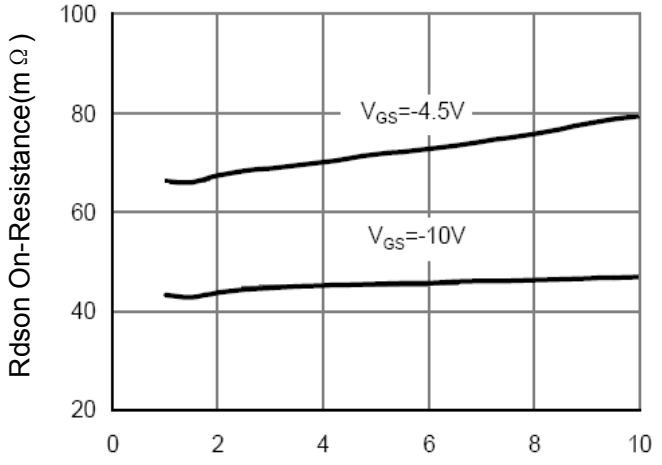


Figure 6 Drain-Source On-Resistance

LOW VOLTAGE MOSFET (P-CHANNEL)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

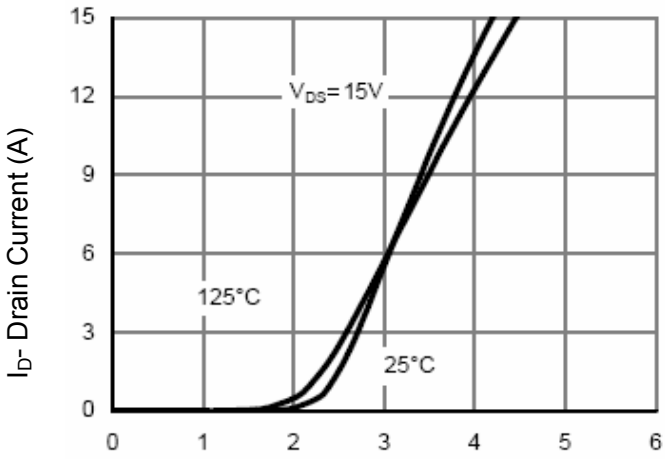


Figure 7 Transfer Characteristics

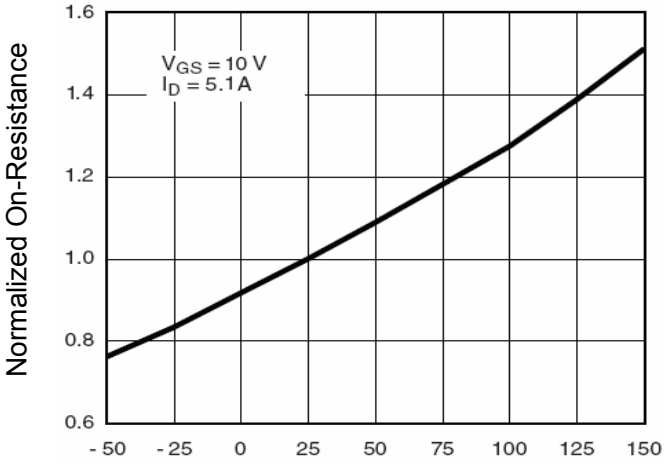


Figure 8 Drain-Source On-Resistance

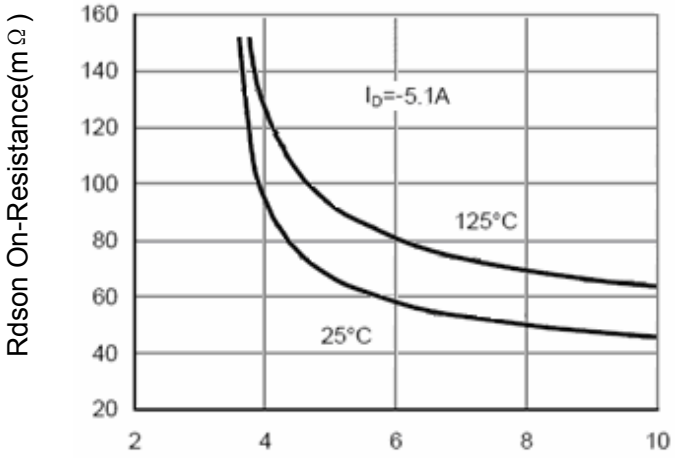


Figure 9 Rdson vs Vgs

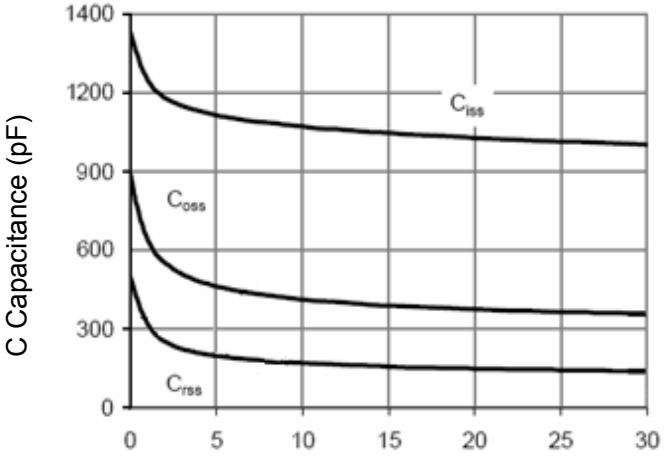


Figure 10 Capacitance vs Vds

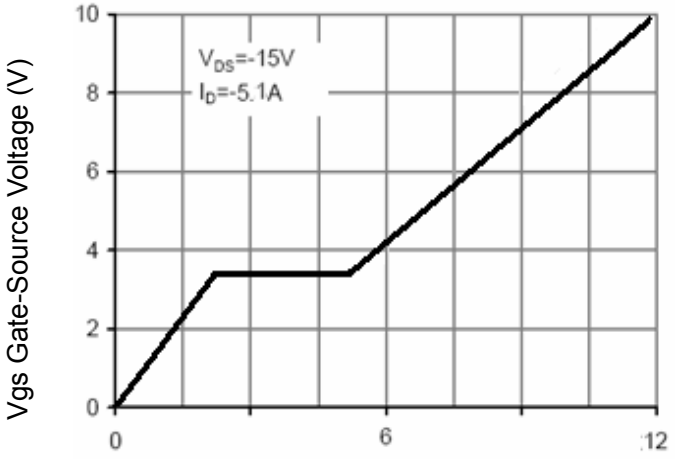


Figure 11 Gate Charge

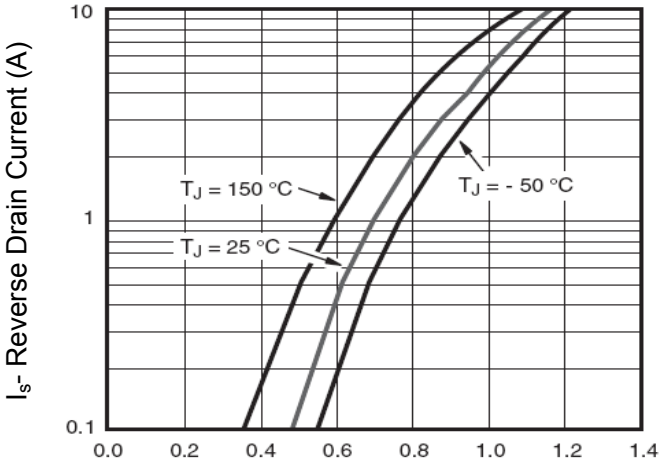


Figure 12 Source- Drain Diode Forward

LOW VOLTAGE MOSFET (P-CHANNEL)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

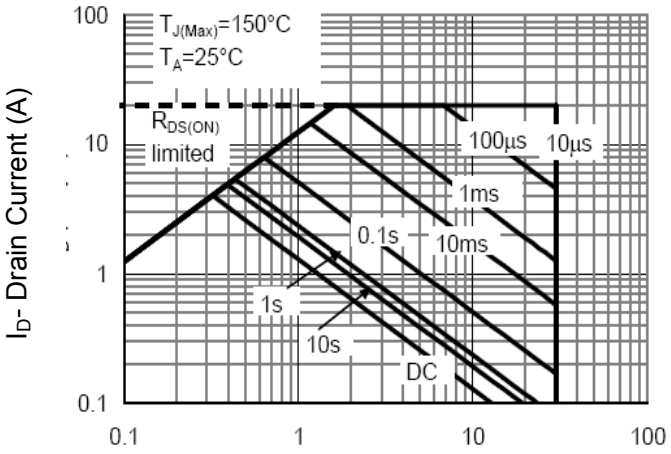


Figure 13 Safe Operation Area

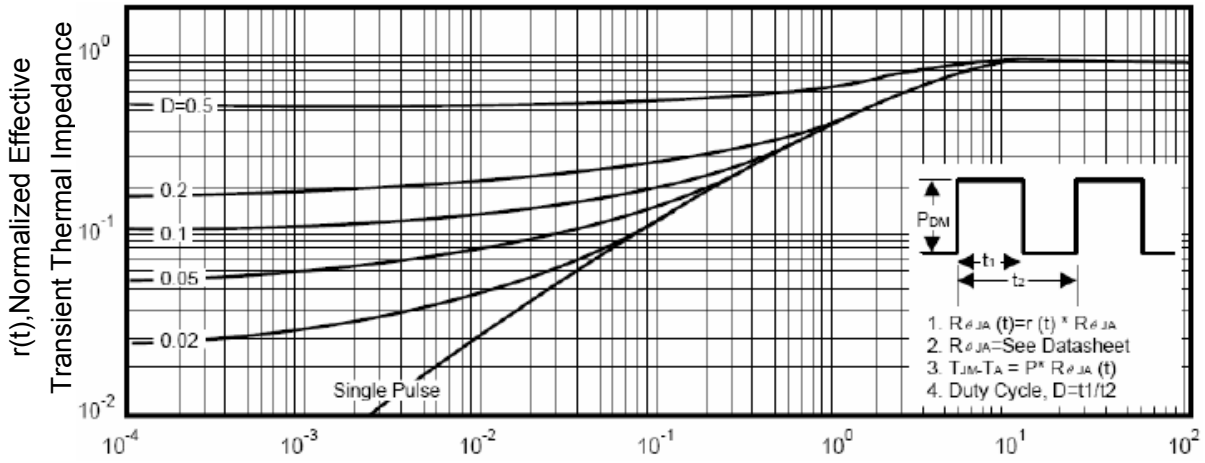
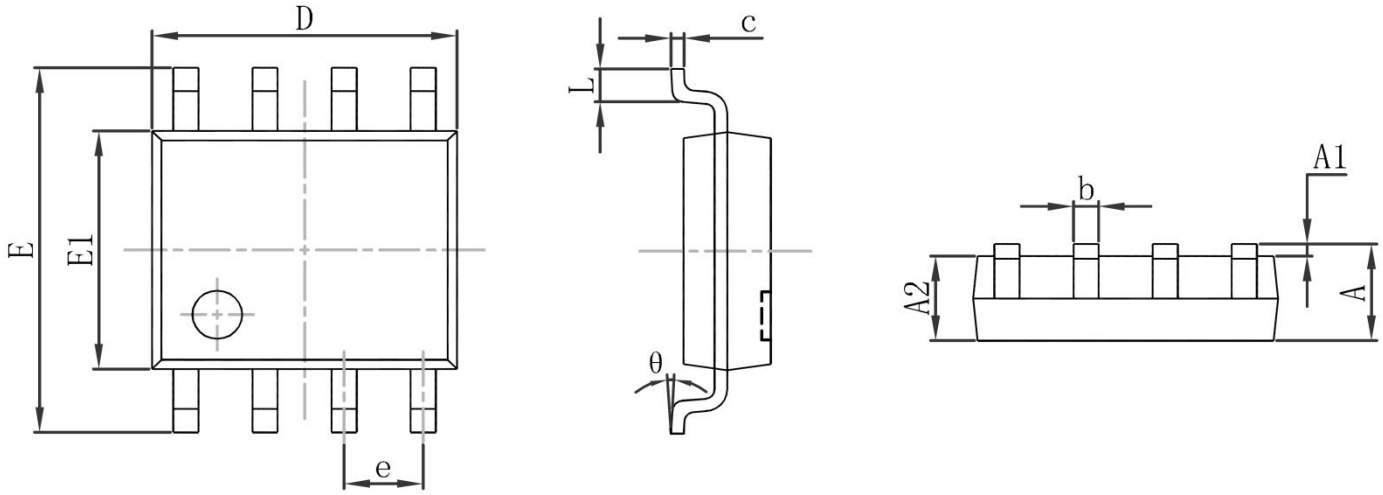


Figure 14 Normalized Maximum Transient Thermal Impedance

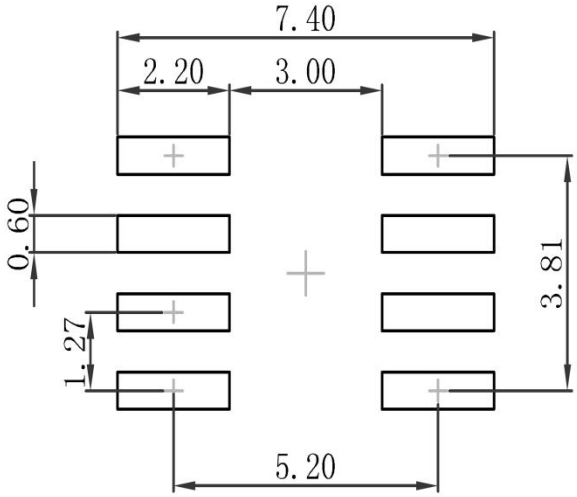
LOW VOLTAGE MOSFET (P-CHANNEL)

SOP-8 Package Outline Dimensions



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	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270(BSC)		0.050（BSC）	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

SOP-8 Suggested Pad Layout



Note:

1.Controlling dimension: in millimeters

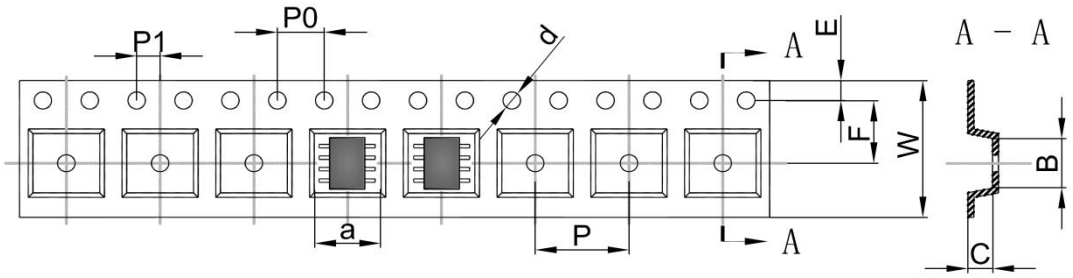
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

LOW VOLTAGE MOSFET (P-CHANNEL)

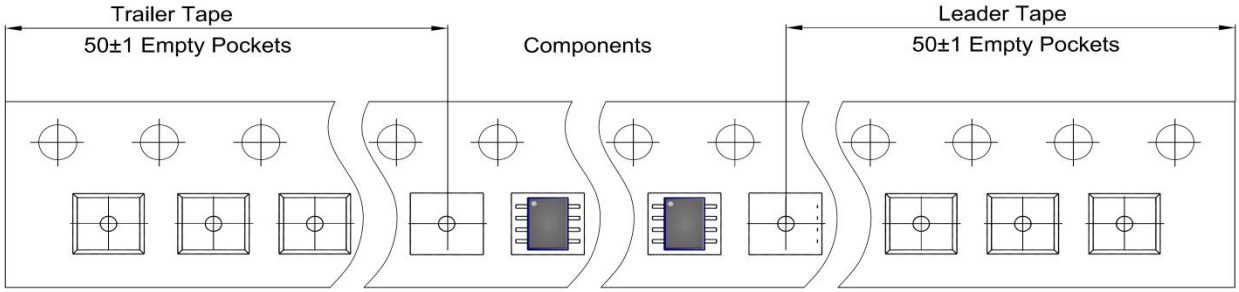
SOP-8 Tape and Reel

SOP-8 Embossed Carrier Tape

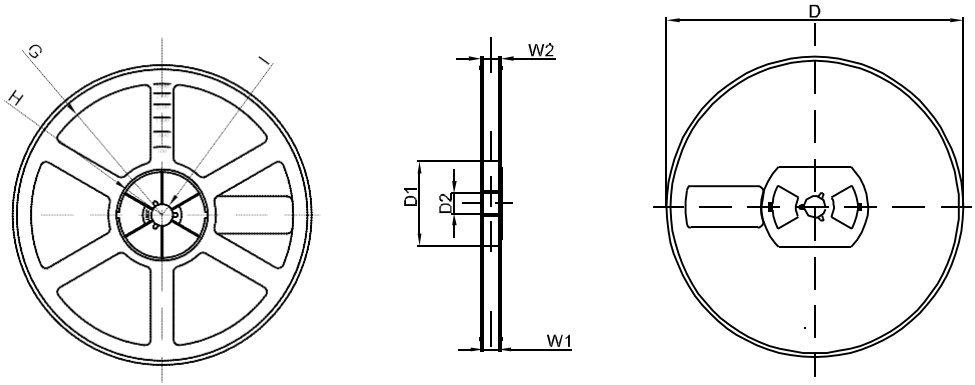


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOP-8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOP-8 Tape Leader and Trailer



SOP-8 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
13” DIA	Ø330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1