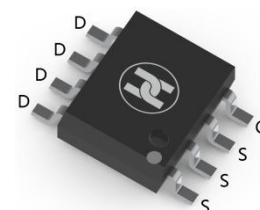
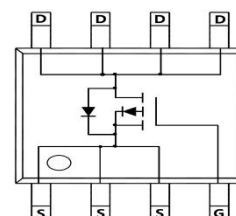


LOW VOLTAGE MOSFET (P-CHANNEL)

FEATURES

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


SOP-8


MECHANICAL DATA

- Case: SOP-8
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.3 grams (approximate)
- Marking: 9435

MAXIMUM RATINGS ($T_A = 25^\circ C$ 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	$^\circ C/W$
Junction temperature	T_J	150	$^\circ C$
Storage temperature	T_{STG}	-55 ~ +150	$^\circ C$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$ 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	m Ω	V _{GS} =-10V, I _D =-5.1A
			70	85	m Ω	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 $\leq 300\mu s$, Duty cycle $\leq 2\%$.

LOW VOLTAGE MOSFET (P-CHANNEL)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

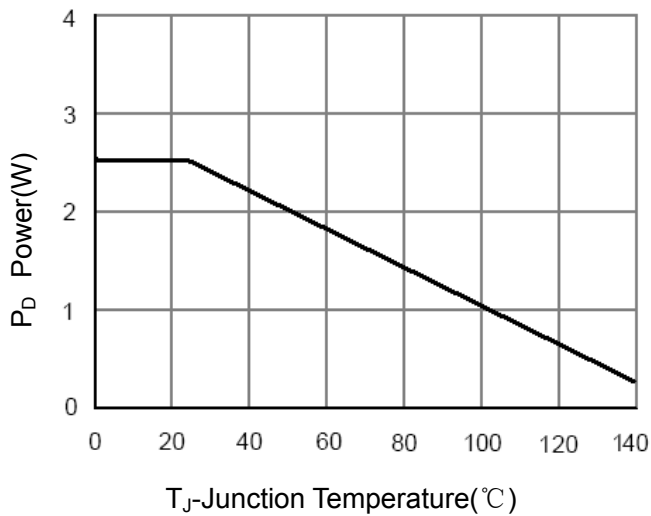


Figure 1 Power Dissipation

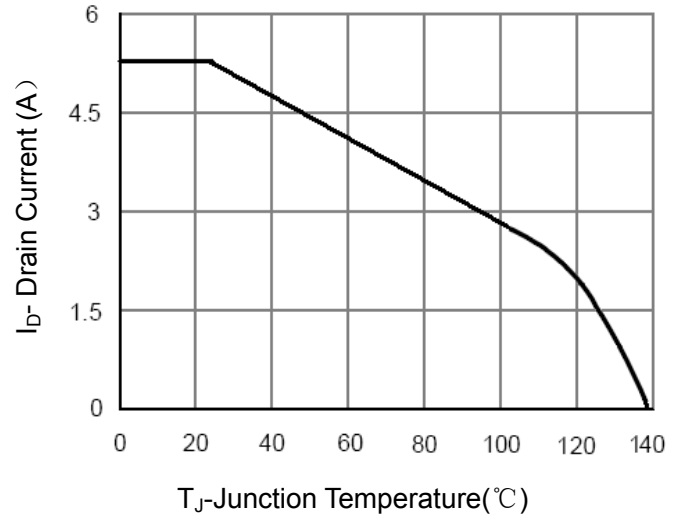


Figure 2 Drain Current

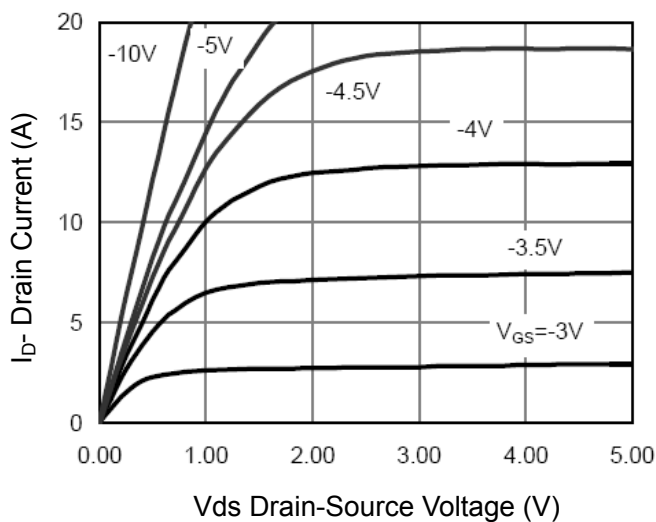


Figure 3 Output CHARACTERISTICS

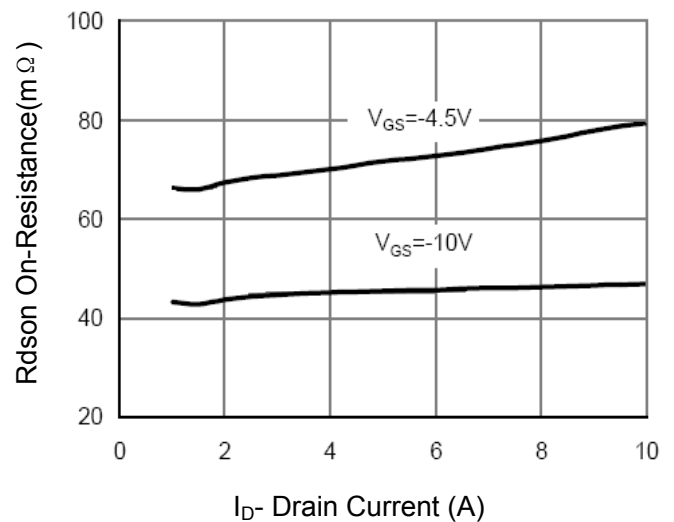


Figure 4 Drain-Source On-Resistance

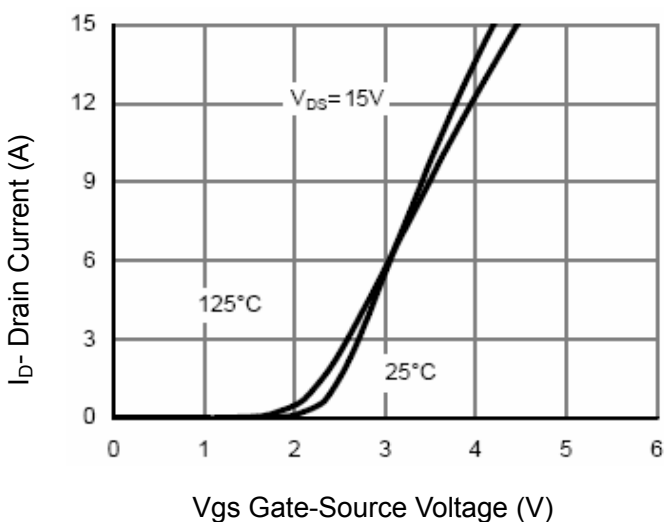


Figure 5 Transfer Characteristics

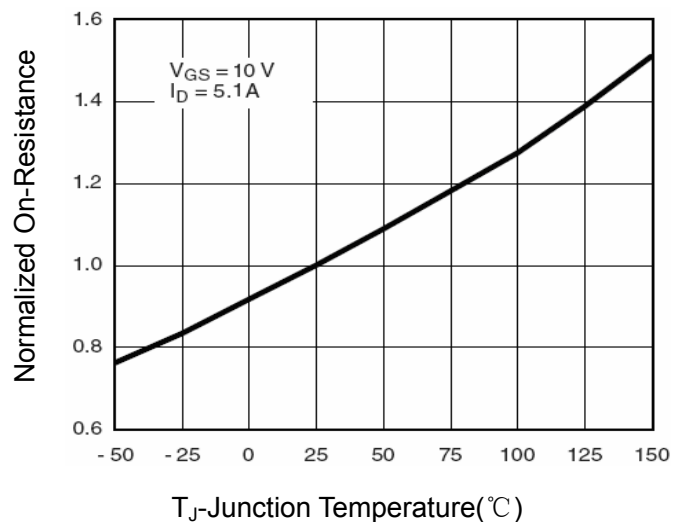
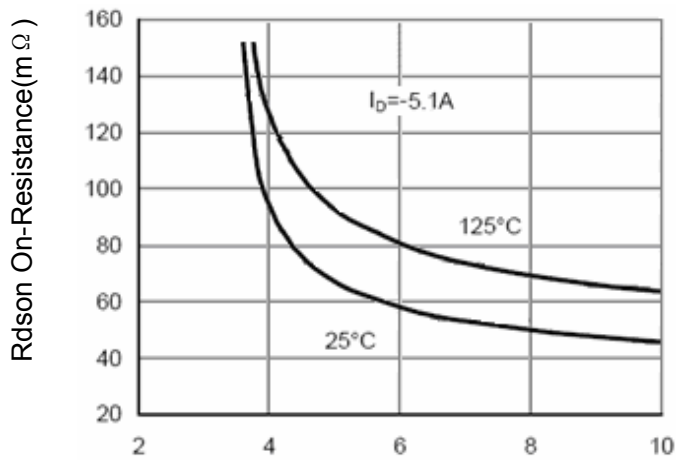


Figure 6 Drain-Source On-Resistance

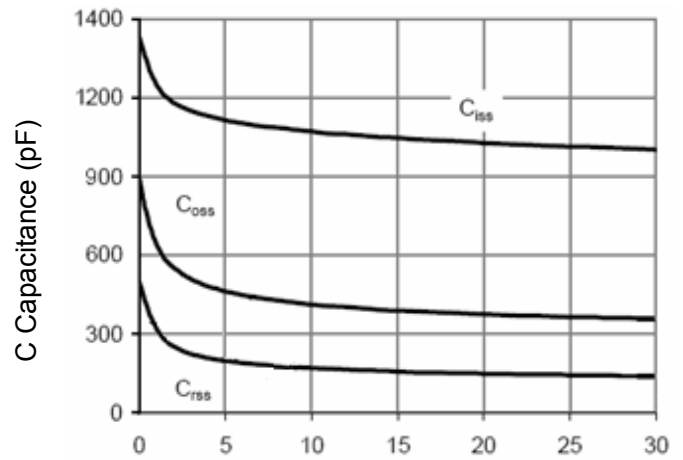
LOW VOLTAGE MOSFET (P-CHANNEL)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



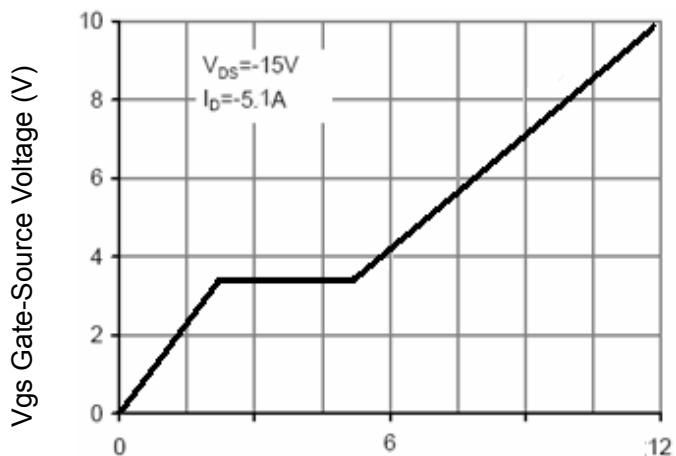
Vgs Gate-Source Voltage (V)

Figure 7 Rdson vs Vgs



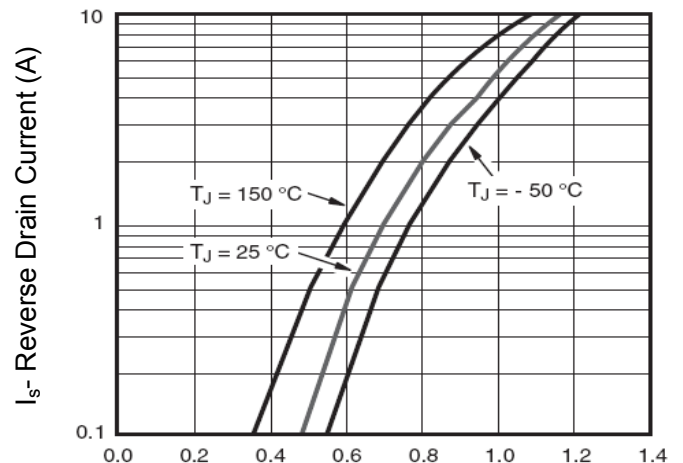
Vds Drain-Source Voltage (V)

Figure 8 Capacitance vs Vds



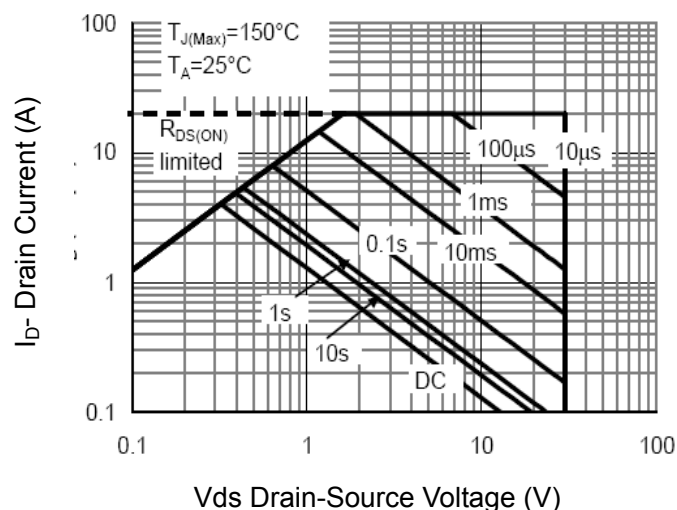
Qg Gate Charge (nC)

Figure 9 Gate Charge



Vsd Source-Drain Voltage (V)

Figure 10 Source- Drain Diode Forward



Vds Drain-Source Voltage (V)

Figure 11 Safe Operation Area

LOW VOLTAGE MOSFET (P-CHANNEL)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

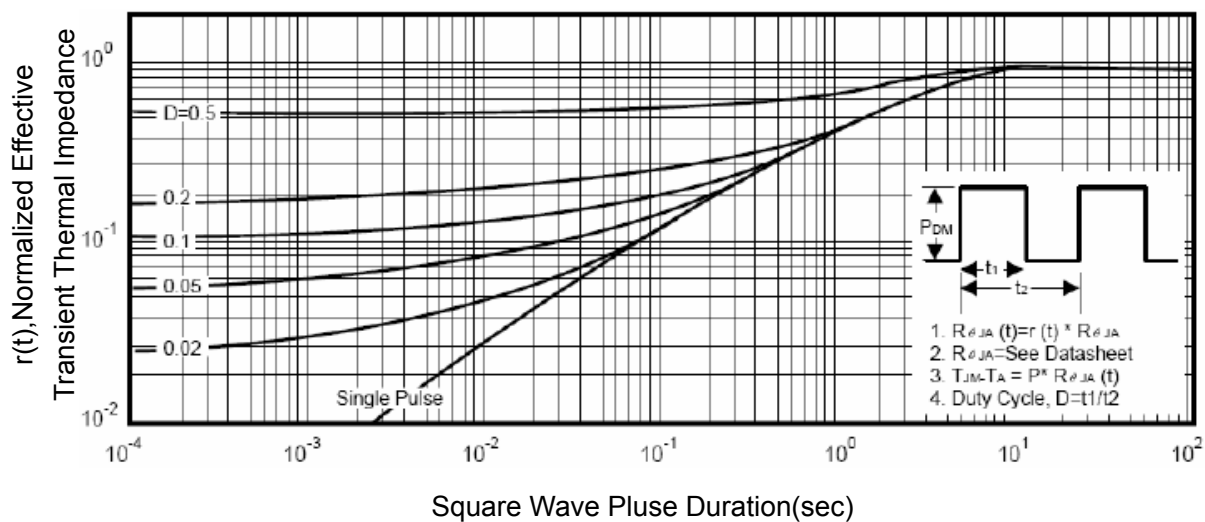
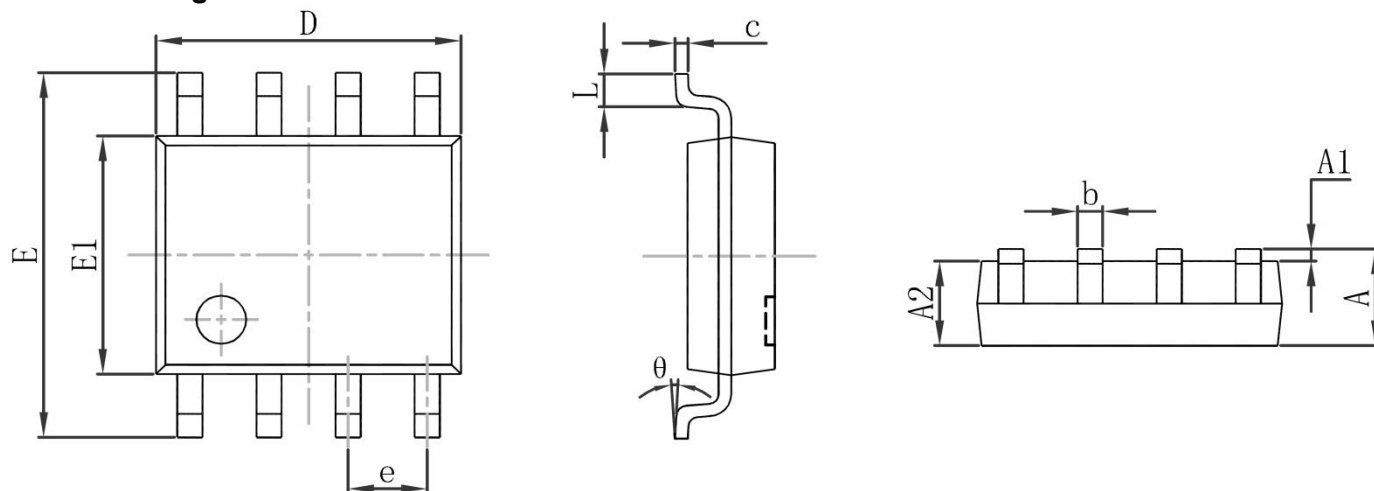


Figure 12 Normalized Maximum Transient Thermal Impedance

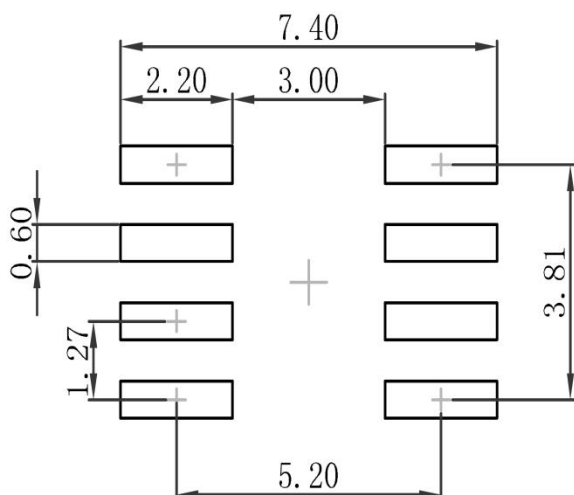
LOW VOLTAGE MOSFET (P-CHANNEL)

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



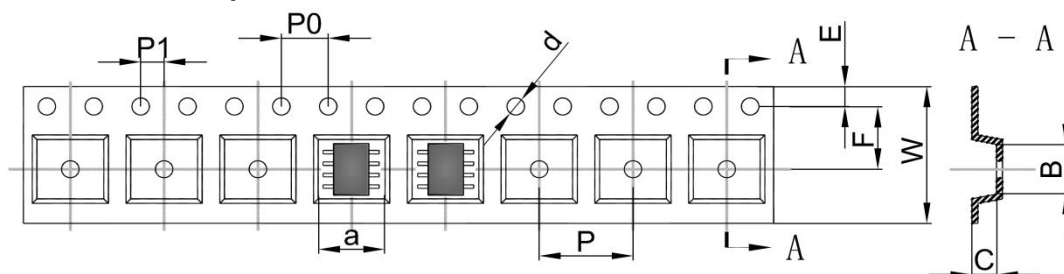
Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

LOW VOLTAGE MOSFET (P-CHANNEL)

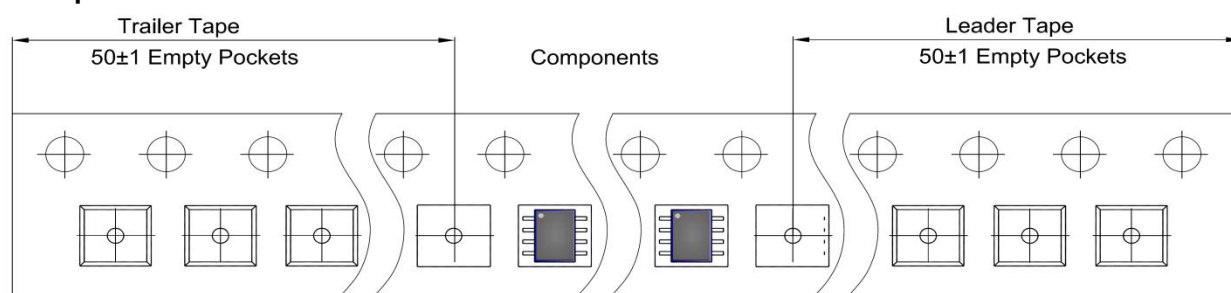
SOP-8 Tape and Reel

SOP-8 Embossed Carrier Tape

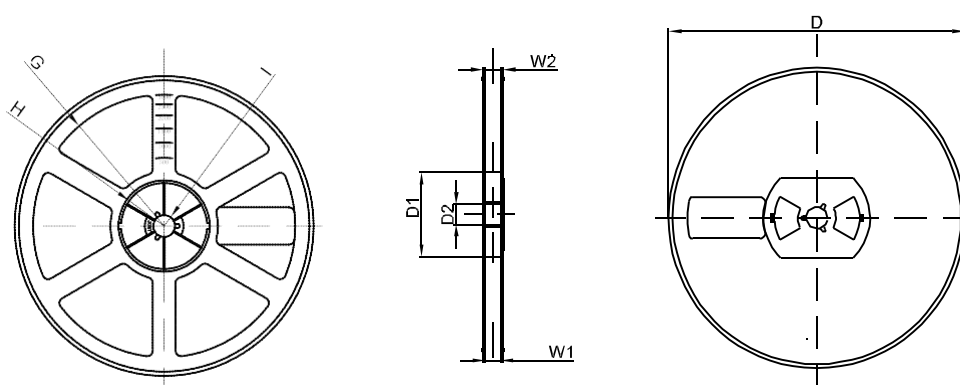


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOP-8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOP-8 Tape Leader and Trailer

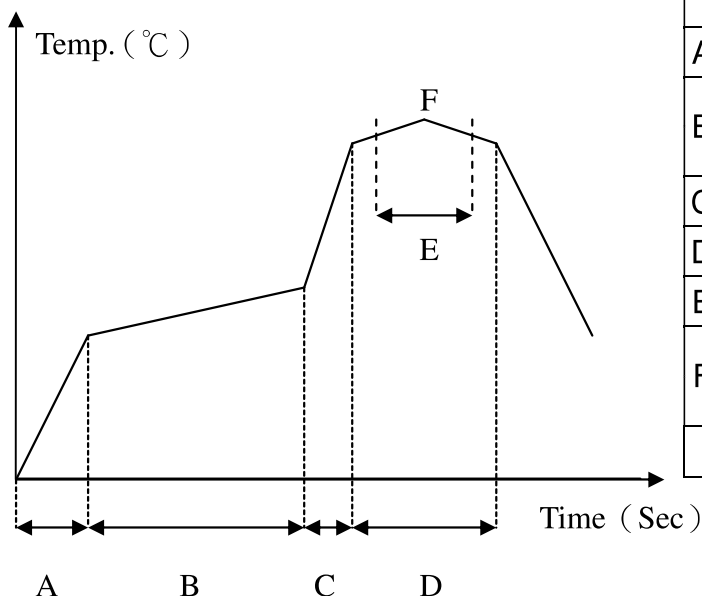


SOP-8 Reel



	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

1.Re-Flow Heat-resisting Temperature Condition



Profile Condition			Unit
A	Ramp Up	1~3	°C/Sec
B	Heat Time	60~180	Sec
	Heat Temp.	150~200	°C
C	Ramp Up	1~3	°C/Sec
D	Temp. Over 217°C	60~150	Sec
E	Temp. Over 245°C	20~40	Sec
F	Peak Temperature	260 ±5°C	°C
	Peak Hold Time	10	Sec
No of Time		3	Times

2.Dip Soldering

Flow soldering with bath

Flow soldering condition : 260 +5/-5°C 10±0.5 Sec.

Times: 3 times

3.Hand Soldering

With soldering iron : 380°C 3±0.5 Sec

Times: 2 times