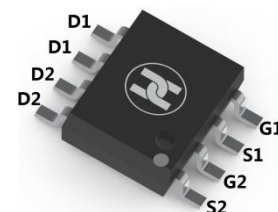
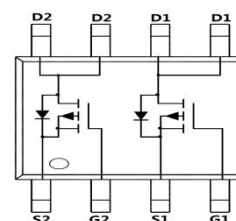


Dual P-Channel Enhancement Mode Field Effect Transistor
FEATURES

- Low on-resistance: $V_{DS}=-30V, I_D=-5.1A, R_{DS(ON)} \leq 55m\Omega @ V_{GS}=-10V$
- 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)

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(Note 1)	I_{DM}	-20	A
Power dissipation	P_D	2.5	W
Thermal resistance from Junction to ambient (Note2)	$R_{\theta JA}$	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	-33		V	$V_{GS}=0V, I_D=-250\mu A$
Zero gate voltage drain current	I_{DSS}			-1	μA	$V_{DS}=-24V, V_{GS}=0V$
Gate-body leakage current	I_{GSS}			± 100	nA	$V_{DS}=0V, V_{GS}=\pm 20V$
On Characteristics(Note3)						
Gate-threshold voltage	$V_{GS(th)}$	-1.1	-1.6	-2.1	V	$V_{DS}=V_{GS}, I_D=-250\mu A$
Drain-source on-resistance	$R_{DS(ON)}$		43	55	m Ω	$V_{GS}=-10V, I_D=-5.1A$
			62	90	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(Note3)						
Diode forward voltage	V_{SD}			-1.2	V	$I_S=-5.1A, V_{GS}=0V$
Dynamic Characteristics (Note4)						
Input capacitance	C_{iss}		520		pF	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$
Output capacitance	C_{oss}		130		pF	
Reverse transfer capacitance	C_{rss}		70		pF	
Switching Characteristics (Note 4)						
Total gate charge	Q_g		11		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	$t_{d(on)}$		7		nS	$V_{GS}=-10V, V_{DD}=-15V, R_{GEN}=6\Omega, I_D=-1A$
Turn-on rise time	t_r		13		nS	
Turn-off delay time	$t_{d(off)}$		14		nS	
Turn-off fall time	t_f		9		nS	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Dual P-Channel Enhancement Mode Field Effect Transistor

Typical Electrical and Thermal Characteristics

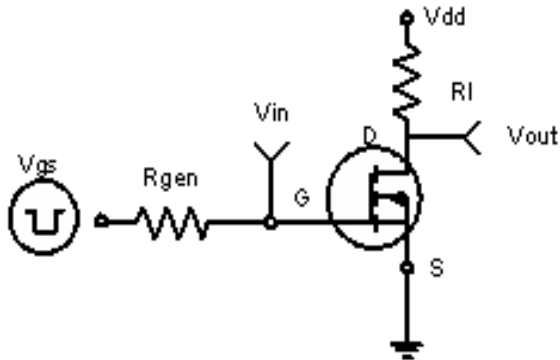


Figure 1: Switching Test Circuit

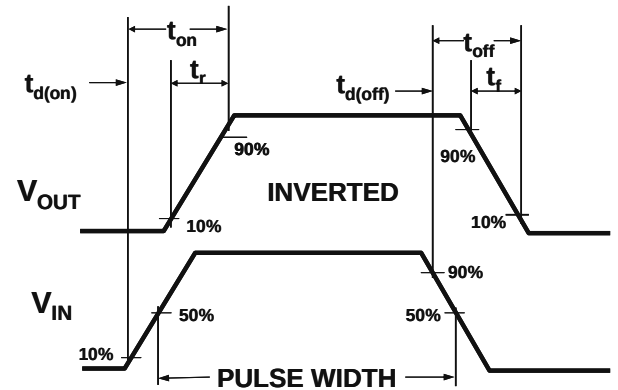


Figure 2: Switching Waveforms

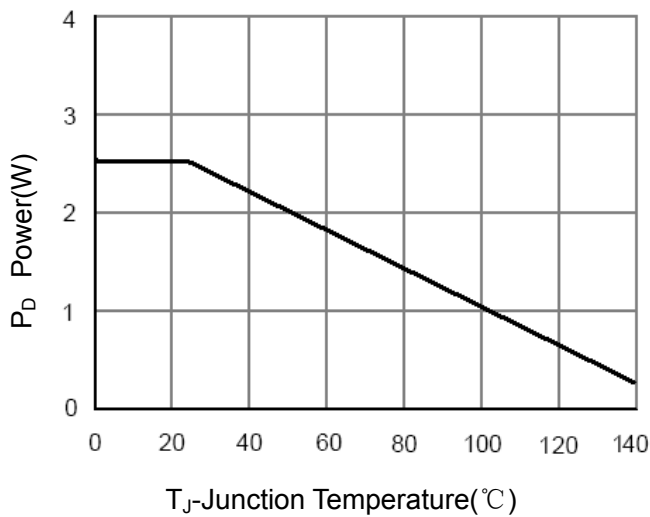


Figure 3 Power Dissipation

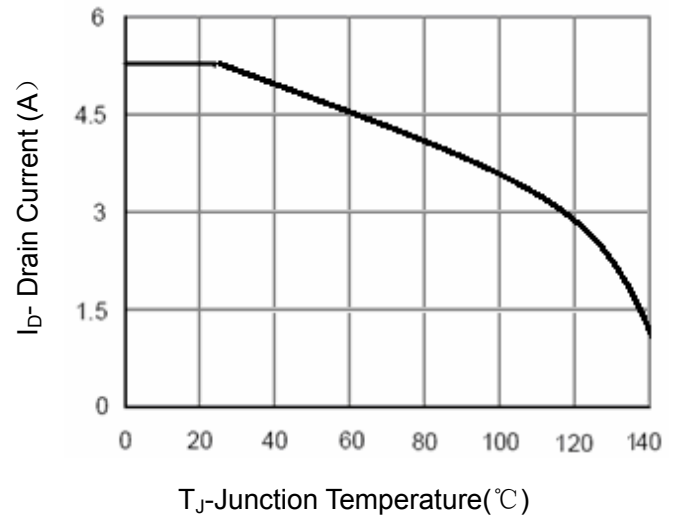


Figure 4 Drain Current

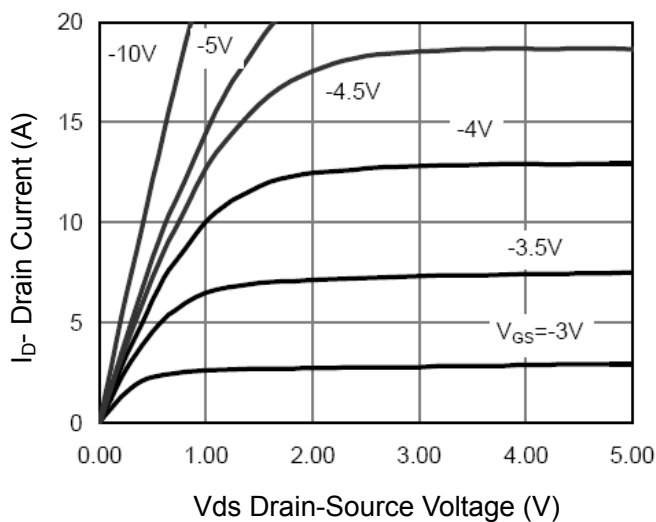


Figure 5 Output Characteristics

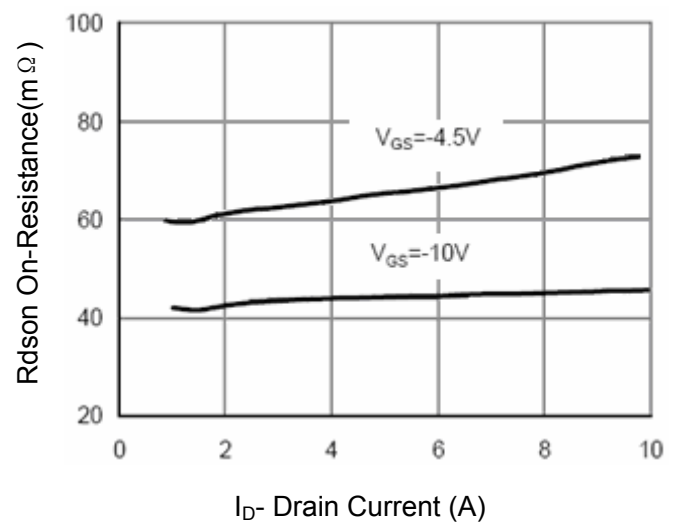


Figure 6 Drain-Source On-Resistance

Dual P-Channel Enhancement Mode Field Effect Transistor

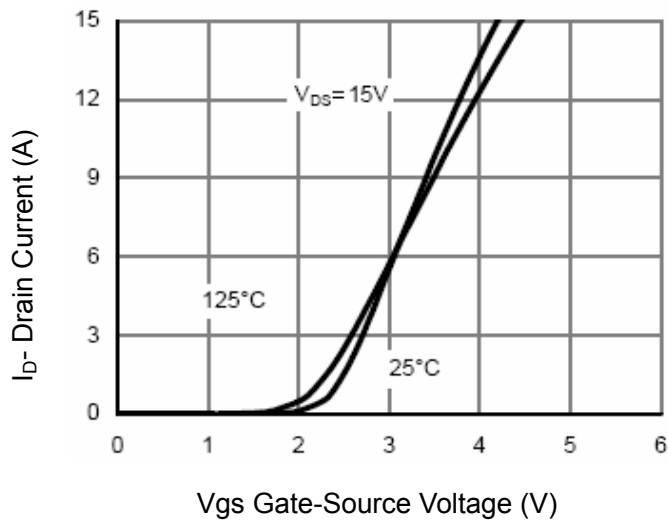


Figure 7 Transfer Characteristics

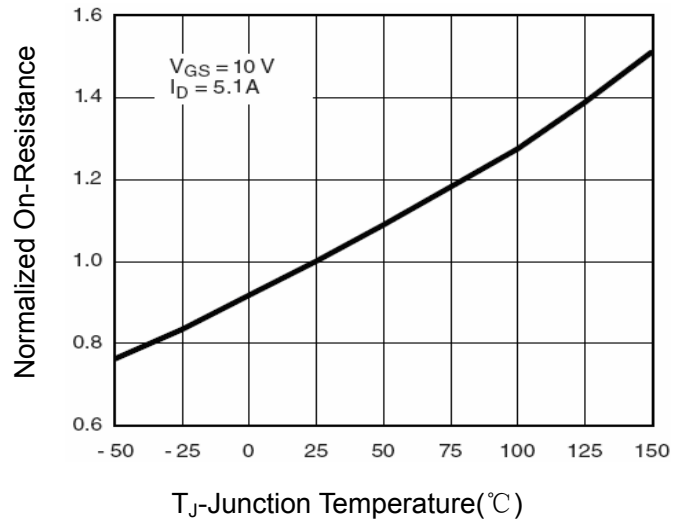


Figure 8 Drain-Source On-Resistance

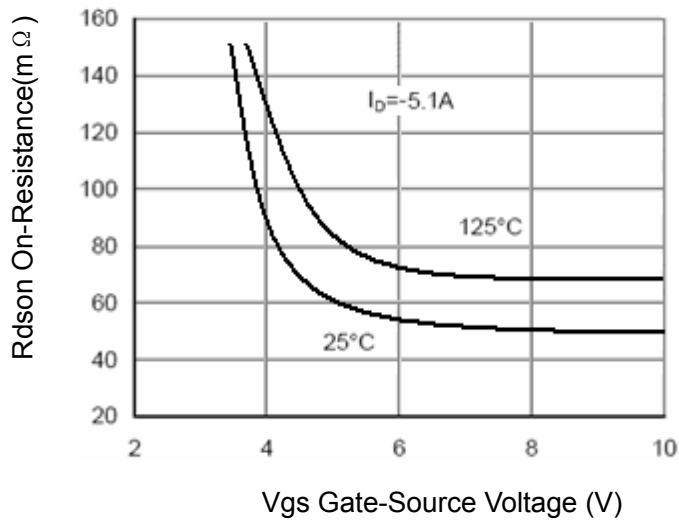


Figure 9 $R_{DS(on)}$ vs V_{GS}

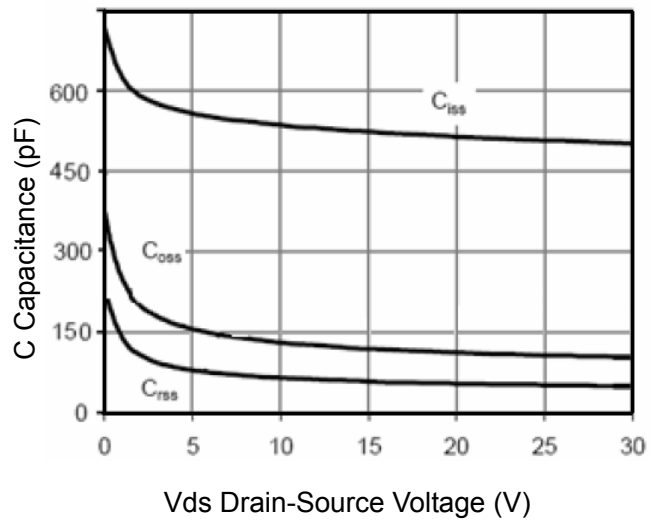


Figure 10 Capacitance vs V_{DS}

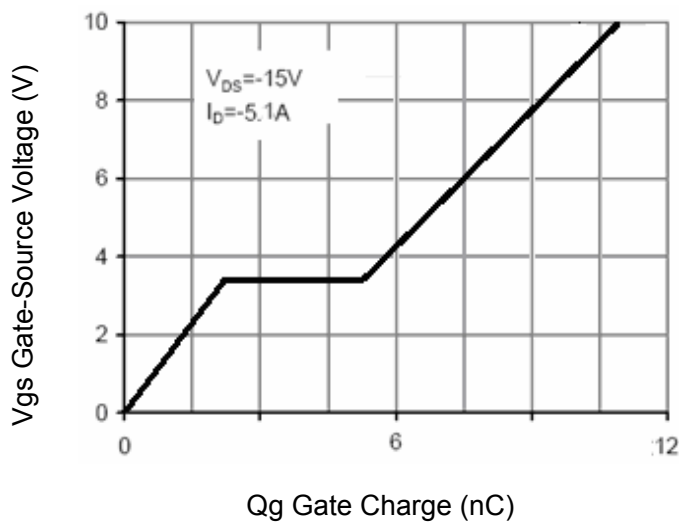


Figure 11 Gate Charge

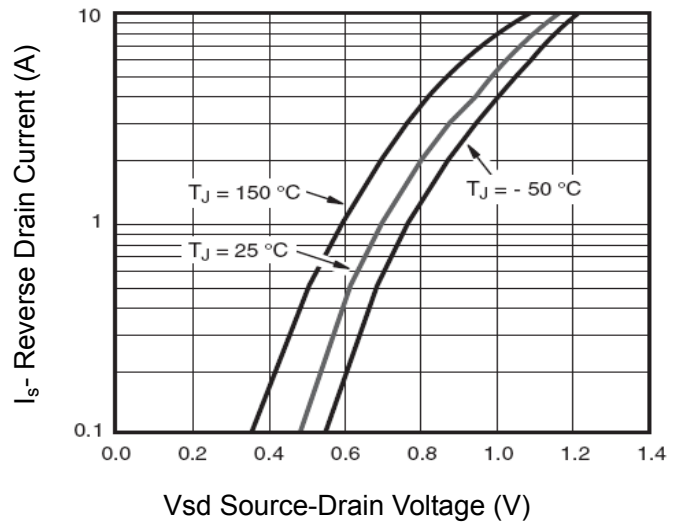


Figure 12 Source- Drain Diode Forward

Dual P-Channel Enhancement Mode Field Effect Transistor

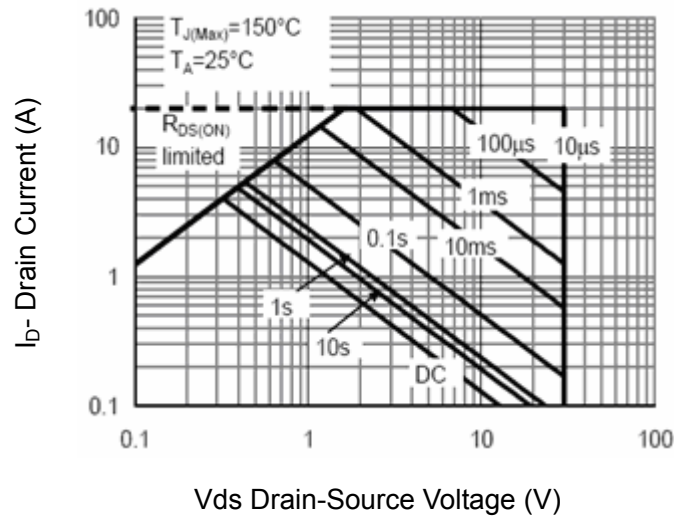


Figure 13 Safe Operation Area

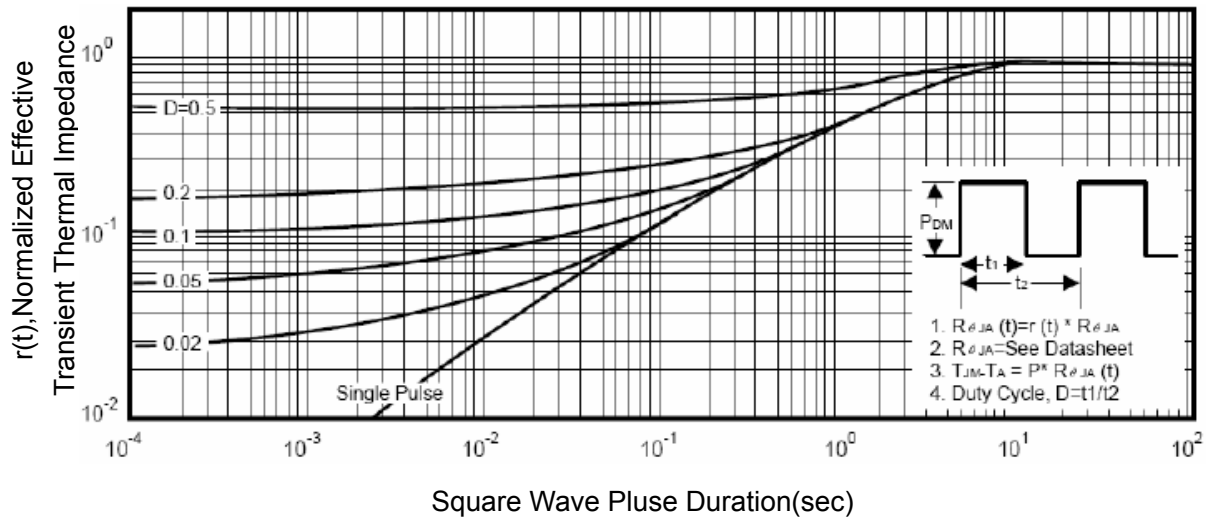
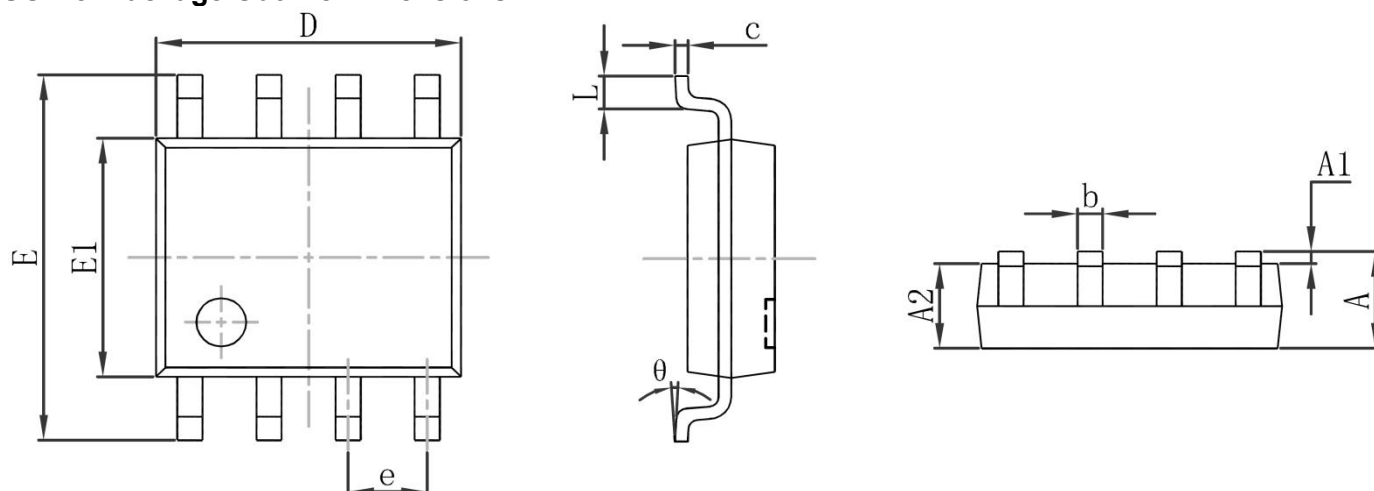
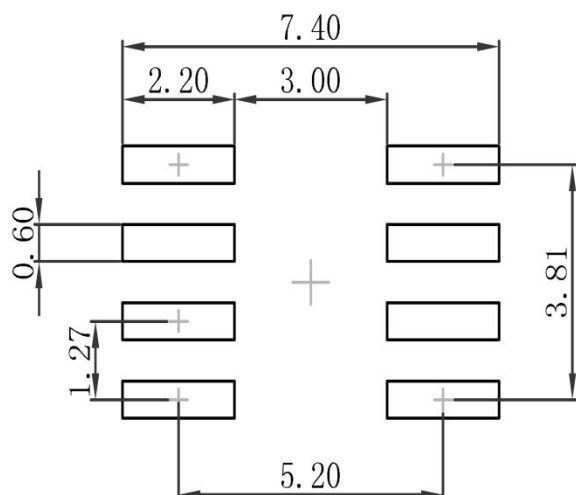


Figure 14 Normalized Maximum Transient Thermal Impedance

Dual P-Channel Enhancement Mode Field Effect Transistor
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°

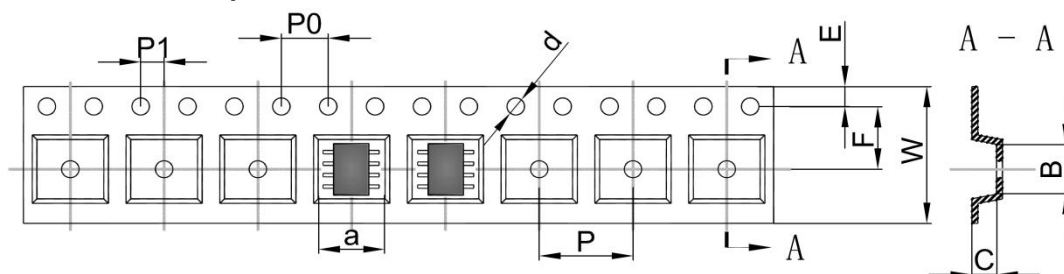
SOP-8 Suggested Pad Layout

Note:

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

Dual P-Channel Enhancement Mode Field Effect Transistor

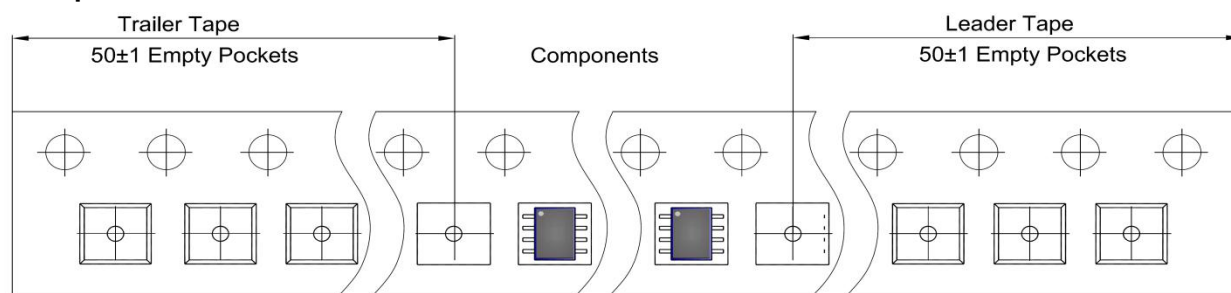
SOP-8 Tape and Reel

SOP-8 Embossed Carrier Tape

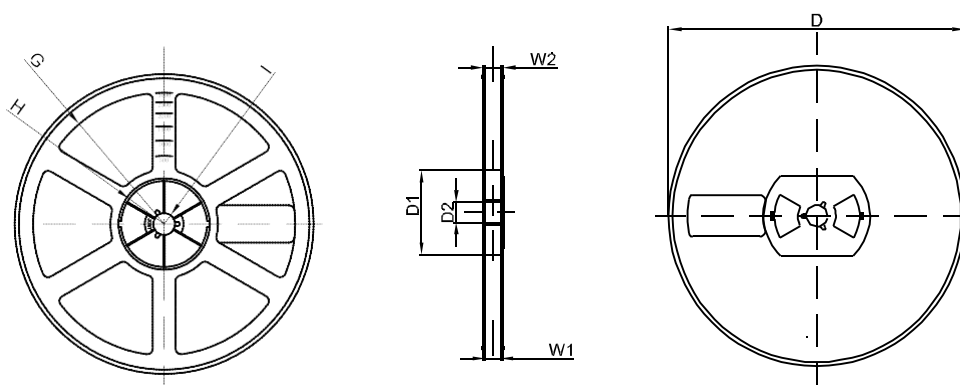


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOP-8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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