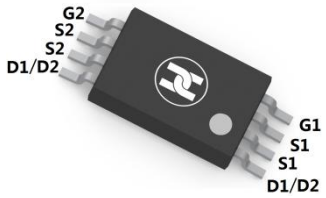
DUAL N-CHANNEL ENHANCEMENT MODE FET



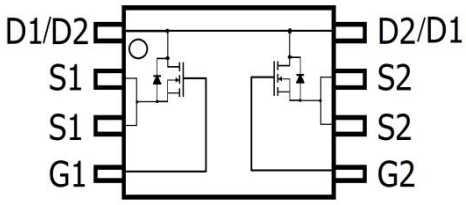
TSSOP-8

FEATURES

- Ultra low on-resistance:V_{DS}=20V,I_D=5A,$R_{DS(ON)}$≤25mΩ@V_{GS}=4.5V
- Low gate charge
- ESD protected
- Surface Mount device

MECHANICAL DATA

- Case: TSSOP-8
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: not available



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

Parameter		Symbol	Value	Unit
Drain-source voltage		V_{DS}	20	V
Gate-source voltage		V_{GS}	±8	V
Continuous drain current T_A = 25°C		I_D	5	A
Pulsed drain current(Note 1)		I_{DM}	20	A
Power dissipation	T_A = 25°C	P_D	2.0	W
	T_A = 70°C	P_D	1.6	W
Thermal resistance from Junction to ambient (Note 2)		$R_{\theta JA}$	78	°C/W
Thermal resistance from Junction to case(Note 2)		$R_{\theta JC}$	40	°C/W
Junction and Storage temperature		T_J,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	$V_{(BR)DSS}$*	20			V	V_{GS}=0V, I_D=250μA
Zero gate voltage drain current	I_{DSS}*			1	μA	V_{DS}=20V, V_{GS}=0V
				5	μA	V_{DS}=20V, V_{GS}=0V,T_J = 55°C
Gate-body leakage current	I_{GSS}*			±50	nA	V_{DS}=0V, V_{GS}=±8V
On Characteristics (Note 3)						
Gate-threshold voltage	$V_{GS(th)}$*	0.5		1.0	V	V_{DS}=V_{GS}, I_D=250μA
Drain-source on-resistance	$R_{DS(ON)}$*		20	25	mΩ	V_{GS}=4.5V, I_D=5A
			35	40	mΩ	V_{GS}=2.5V, I_D=4A
Forward transconductance	g_{FS}		11		S	V_{DS}=5V, I_D=4.5A
On-state Drain Current	$I_{D(ON)}$	15			A	V_{DS}=5V,V_{GS}=4.5V
Drain-Source Diode Characteristics						
Diode forward voltage	V_{SD}		0.75	1.2	V	I_S=4.5A, V_{GS}=0V
Diode forward current	I_S	5			A	
Dynamic Characteristics (Note4)						
Input capacitance	C_{iss}		700		pF	V_{DS}=10V, V_{GS}=4.5V, f=1MHz
Output capacitance	C_{oss}		175		pF	
Reverse transfer capacitance	C_{rss}		85		pF	
Switching Characteristics (Note 4)						
Total gate charge	Q_g		7	10	nC	V_{GS}=4.5V,V_{DS}=10V,I_D=3A
Gate-source charge	Q_{gs}		1.2		nC	
Gate-drain charge	Q_{gd}		1.9		nC	
Turn-on delay time	$t_{d(on)}$		8	16	nS	V_{GS}=4.5V, V_{DS}=10V, I_D=1A,R_{GEN}=6Ω
Turn-on rise time	t_r		10	18	nS	
Turn-off delay time	$t_{d(off)}$		18	29	nS	
Turn-off fall time	t_f		5	10	nS	

Notes:

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

DUAL N-CHANNEL ENHANCEMENT MODE FET

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

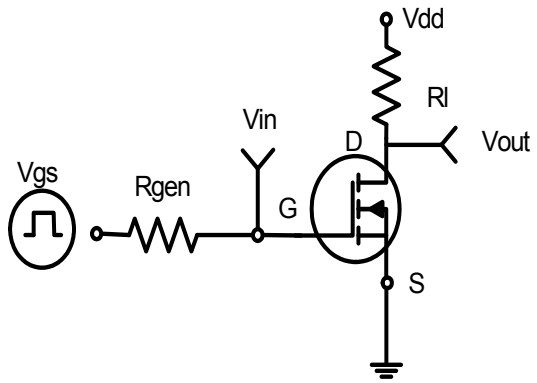


Figure 1:Switching Test Circuit

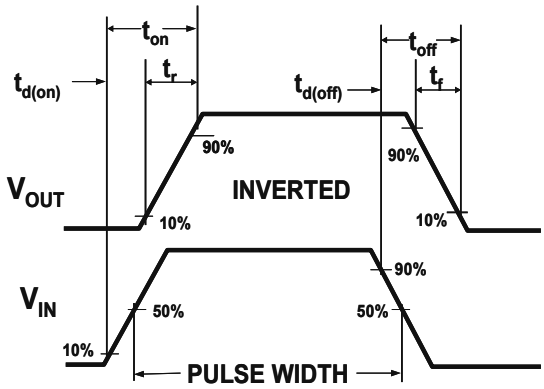


Figure 2:Switching Waveforms

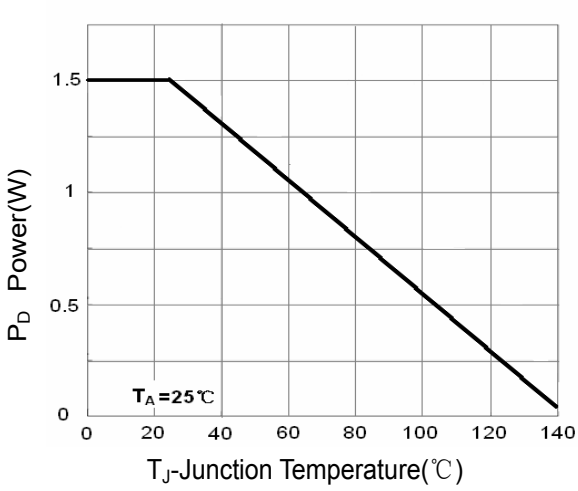


Figure 3 Power Dissipation

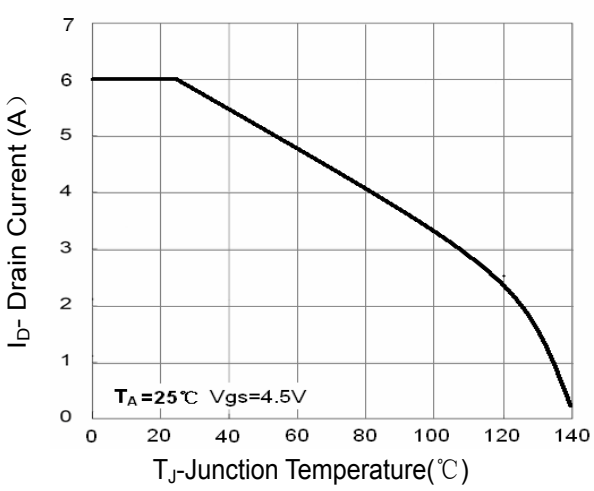


Figure 4 Drain Current

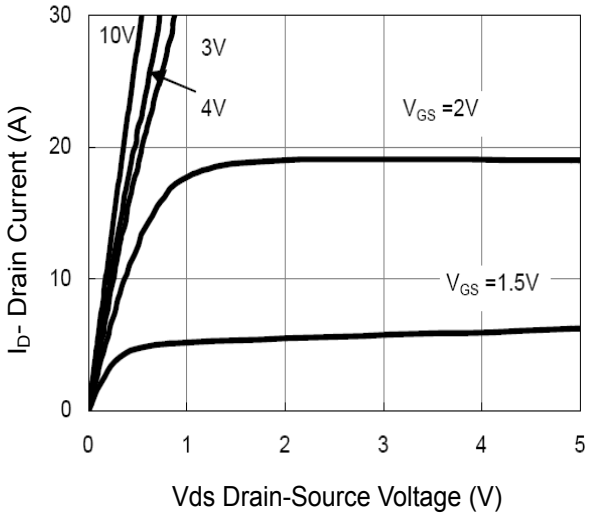


Figure 5 Output CHARACTERISTICS

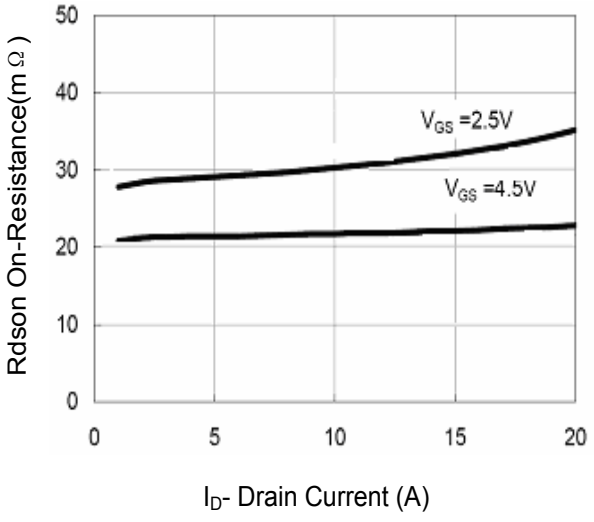


Figure 6 Drain-Source On-Resistance

DUAL N-CHANNEL ENHANCEMENT MODE FET

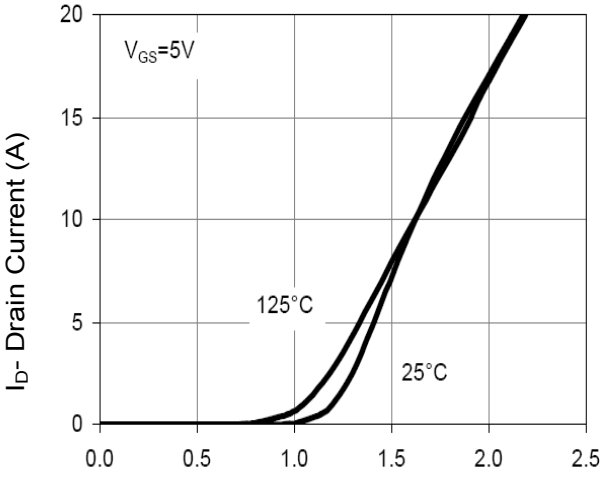


Figure 7 Transfer Characteristics

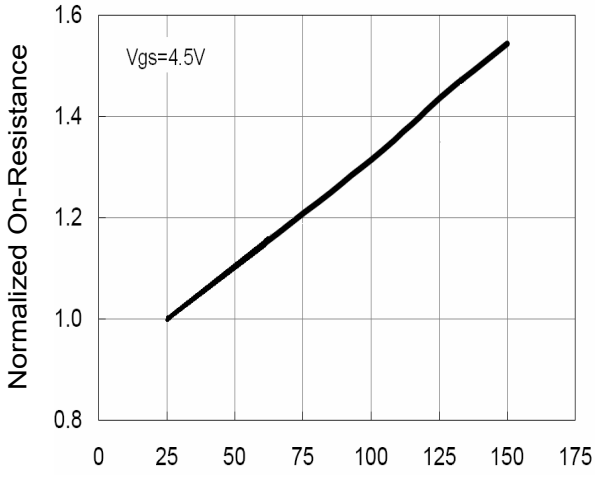


Figure 8 Drain-Source On-Resistance

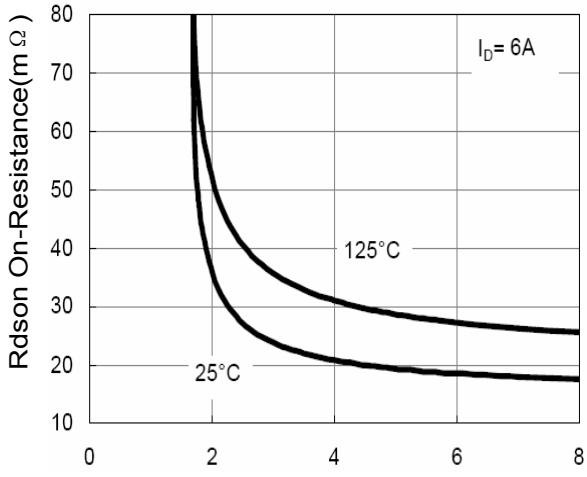


Figure 9 Rdson vs Vgs

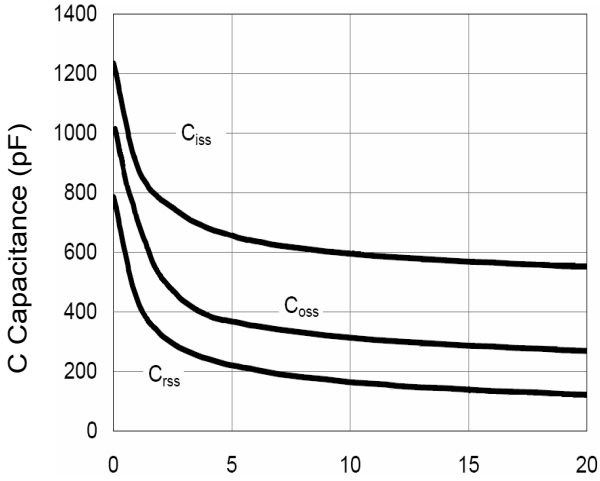


Figure 10 Capacitance vs Vds

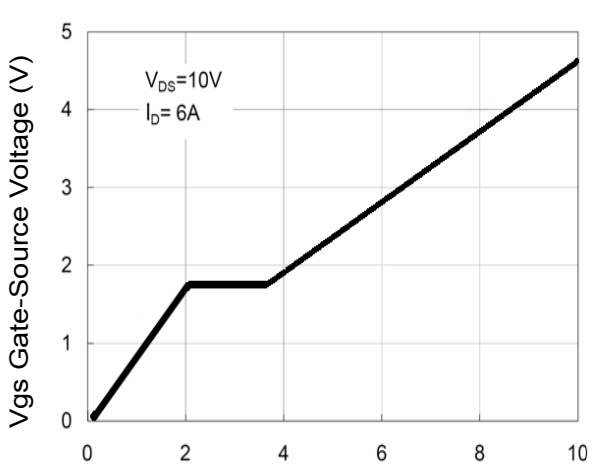


Figure 11 Gate Charge

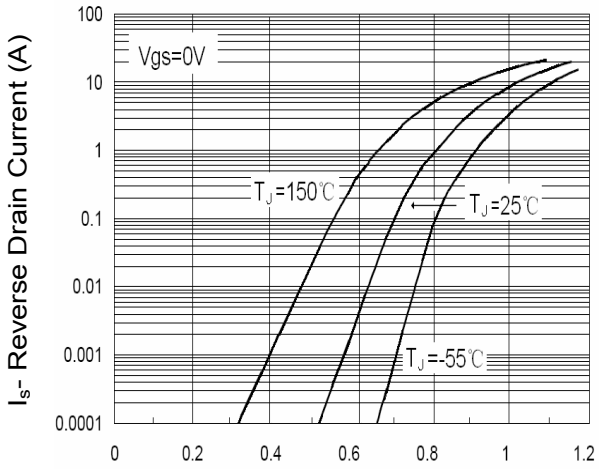


Figure 12 Source- Drain Diode Forward

DUAL N-CHANNEL ENHANCEMENT MODE FET

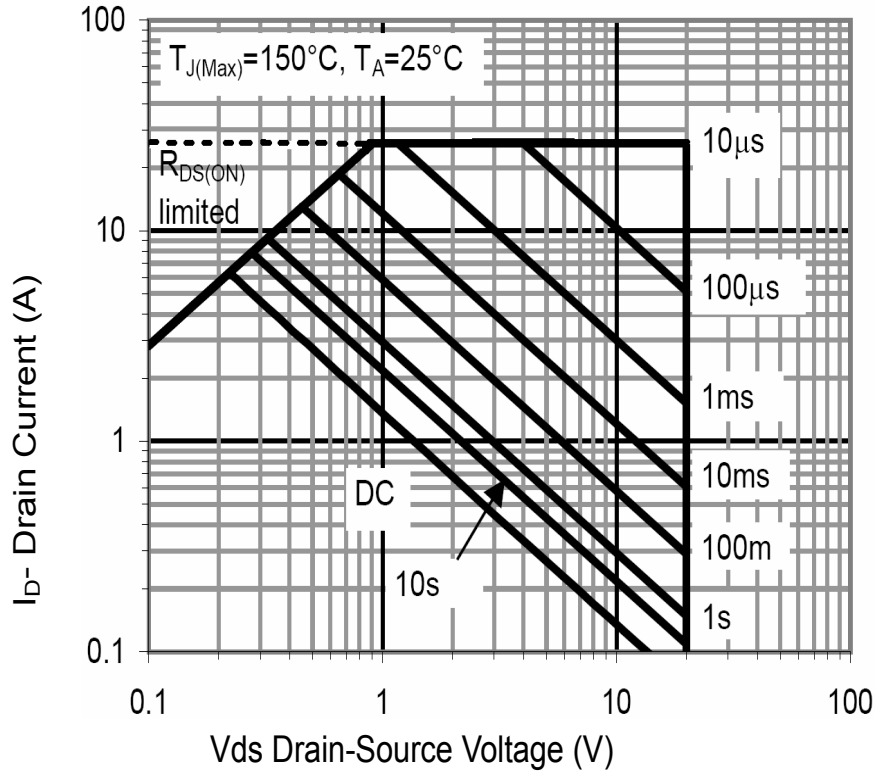


Figure 13 Safe Operation Area

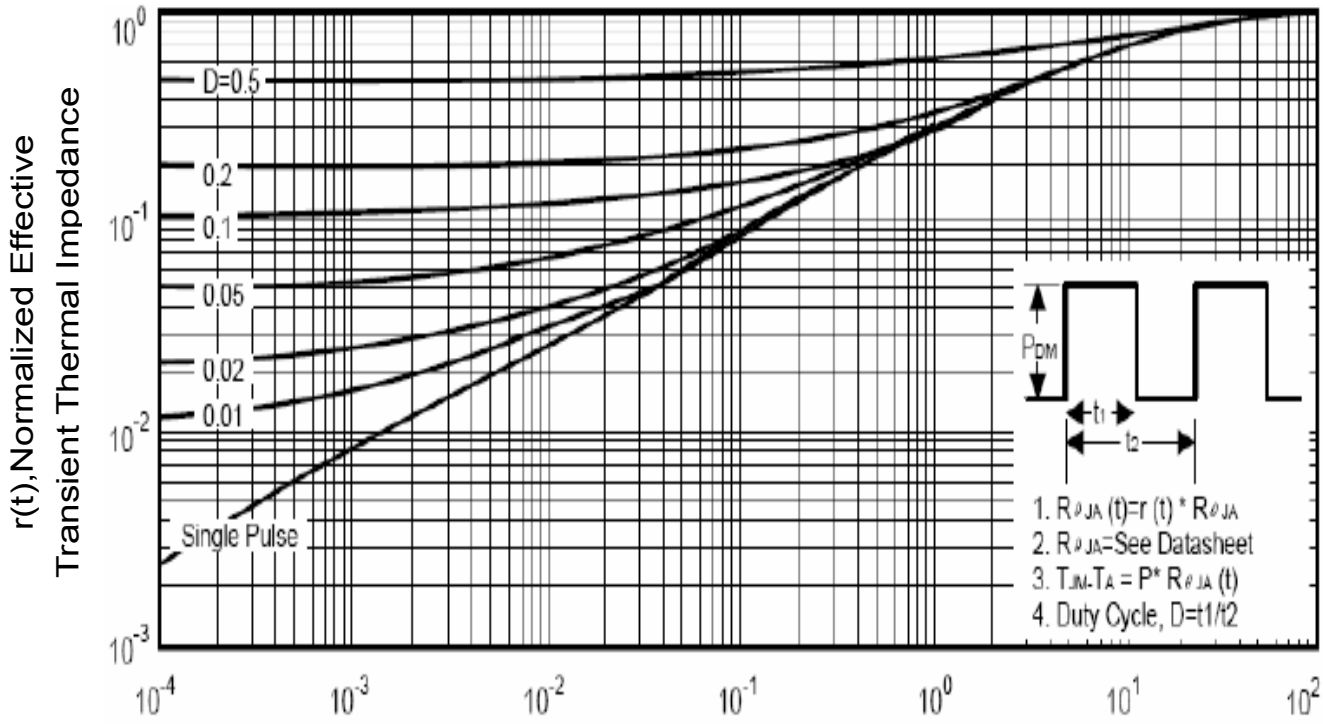
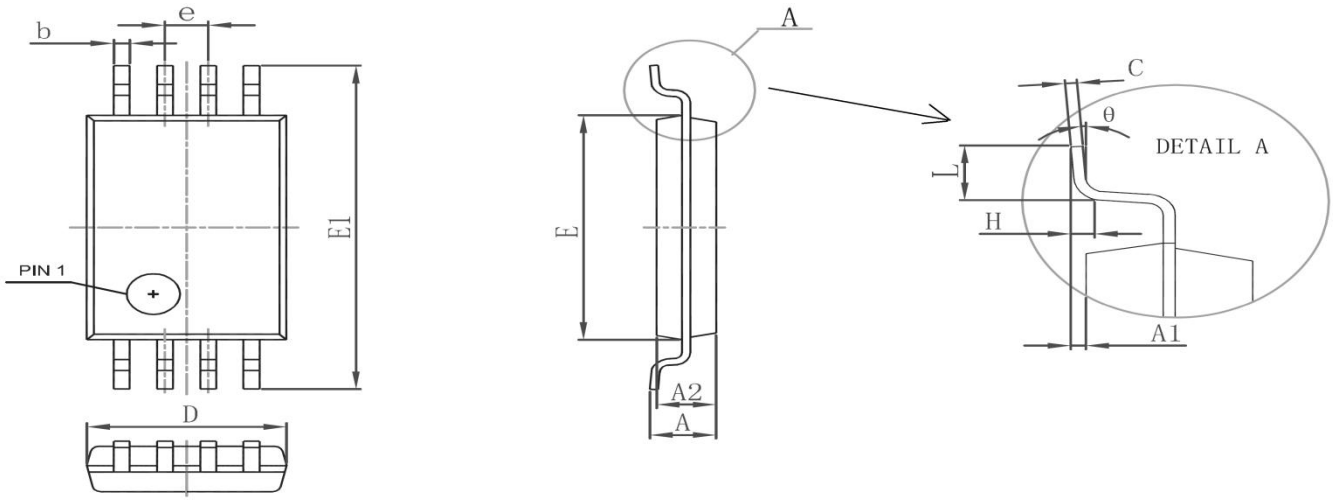


Figure 14 Normalized Maximum Transient Thermal Impedance

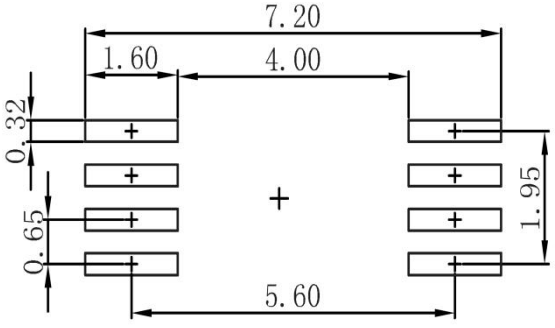
DUAL N-CHANNEL ENHANCEMENT MODE FET

TSSOP-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.200		0.047
A2	0.800	1.000	0.031	0.039
A1	0.050	0.150	0.002	0.006
e	0.65(BSC)		0.026(BSC)	
L	0.500	0.700	0.020	0.028
H	0.25(TYP)		0.01(TYP)	
θ	1°	7°	1°	7°

TSSOP-8 Suggested Pad Layout



Note:

1.Controlling dimension: in millimeters

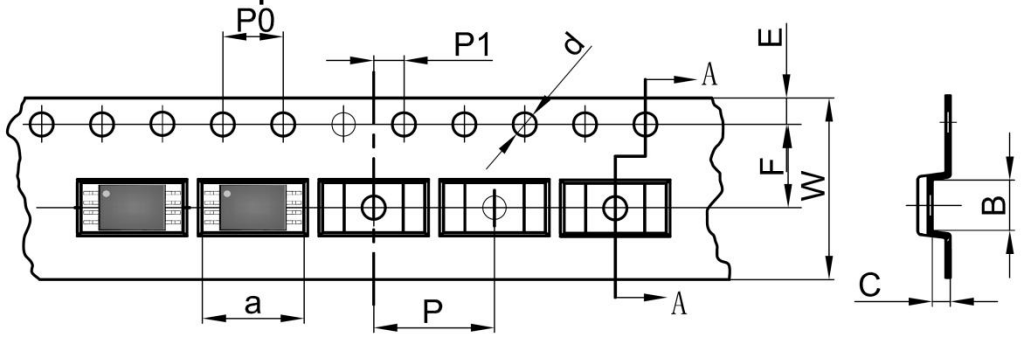
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

DUAL N-CHANNEL ENHANCEMENT MODE FET

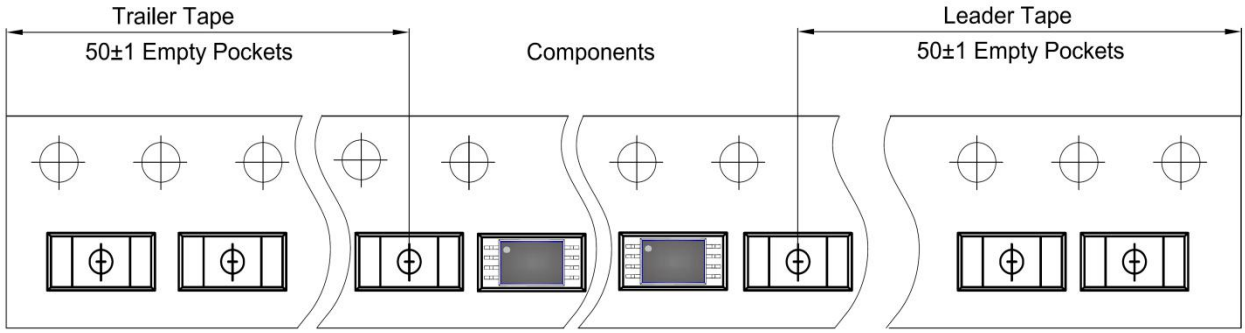
TSSOP-8 Tape and Reel

TSSOP-8 Embossed Carrier Tape

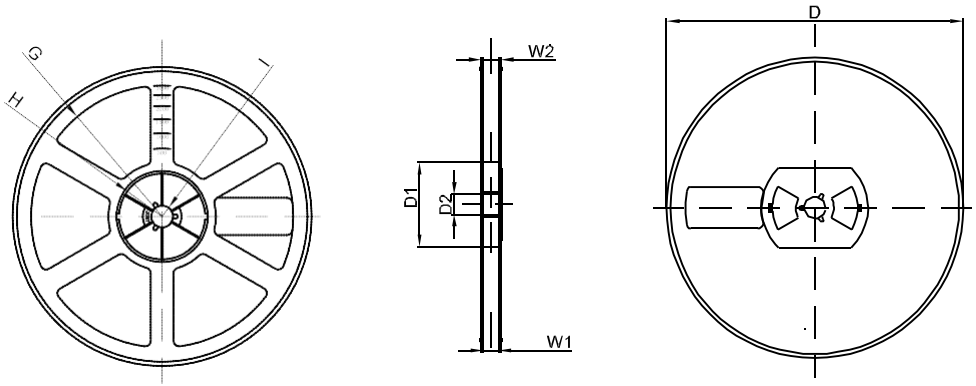


	DIMENSIONS ARE IN MILLIMETER									
TYPE	a	B	C	d	E	F	P0	P	P1	W
SOP-8	6.76	3.30	1.20	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

TSSOP-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