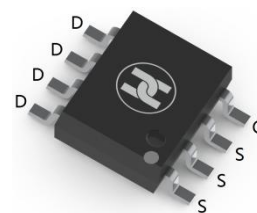
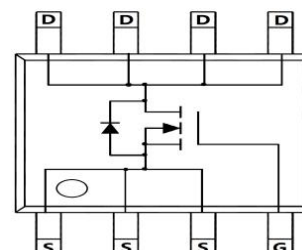


HIGH VOLTAGE MOSFET (N-CHANNEL)
FEATURES

- Ultra low on-resistance: $V_{DS}=100V, I_D=29.5A, R_{DS(ON)} \leq 9.5m\Omega @ V_{GS}=10V$
- Low Input Capacitance and Fast Switching Speed
- High Conversion Efficiency
- For Back-lighting, DC-DC Converters and Power Management Functions
- Surface Mount device


SOP-8

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 ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit	
Drain-source voltage	V_{DS}	100	V	
Gate-source voltage	V_{GS}	± 20	V	
Continuous drain current(2), $V_{GS} = 10V$	I_D	$T_A = 25^\circ C$	11.5	A
		$T_A = 70^\circ C$	9.2	A
		$T_C = 25^\circ C$	29.5	A
		$T_C = 100^\circ C$	18.6	A
Pulsed drain current(10 μ s Pulse, Duty Cycle = 1%)	I_{DM}	75	A	
Maximum Continuous Body Diode Forward Current (2)	I_S	3	A	
Avalanche current(4), $L=0.3mH$	I_{AS}	10	A	
Avalanche energy(4), $L=0.3mH$	E_{AS}	15	mJ	
Power dissipation(1)	P_D	3.1	W	
Thermal resistance from Junction to ambient (1)	$R_{\theta JA}$	90	$^\circ C/W$	
Power dissipation(2)	P_D	1.9	W	
Thermal resistance from Junction to ambient (2)	$R_{\theta JA}$	66	$^\circ C/W$	
Thermal resistance from Junction to case (2)	$R_{\theta JC}$	10.1	$^\circ C/W$	
Operating and Storage temperature	T_J, T_{STG}	-55 ~ +150	$^\circ C$	

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage(3)	$V_{(BR)DSS}$	100			V	$V_{GS}=0V, I_D=1mA$
Zero gate voltage drain current(3)	I_{DSS}			1	μA	$V_{DS}=80V, V_{GS}=0V$
Gate-body leakage current(3)	I_{GSS}			± 100	nA	$V_{DS}=0V, V_{GS}=\pm 20V$
Gate-threshold voltage (3)	$V_{GS(th)}$	1.4	1.9	2.8	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Drain-source on-resistance (3)	$R_{DS(ON)}$		8.0	9.5	$m\Omega$	$V_{GS}=10V, I_D=13A$
			9.0	12	$m\Omega$	$V_{GS}=6V, I_D=13A$
			10.0	14.5	$m\Omega$	$V_{GS}=4.5V, I_D=5A$
Diode forward voltage (3)	V_{SD}		0.8	1.3	V	$I_S=13A, V_{GS}=0V$
Input capacitance(4)	C_{iss}		3000		pF	
Output capacitance(4)	C_{oss}		8.75		pF	$V_{DS}=50V, V_{GS}=0V, f=1MHz$
Reverse transfer capacitance(4)	C_{rss}		63		pF	
Gate resistance(4)	R_g		1.0		Ω	$V_{DS}=0V, V_{GS}=0V, f=1MHz$
Total gate charge(4)	Q_g		71		nC	$V_{DD}=50V, V_{GS}=10V, I_D=13A$
Gate-source charge(4)	Q_{gs}		11		nC	
Gate-drain charge(4)	Q_{gd}		16		nC	
Turn-on delay time(4)	$t_{d(on)}$		12		nS	$V_{DD}=50V, V_{GS}=10V, I_D=13A, R_g=6\Omega$
Turn-on rise time(4)	t_r		17		nS	
Turn-off delay time(4)	$t_{d(off)}$		52		nS	
Turn-off fall time(4)	t_f		37		nS	
Body Diode Reverse Recovery Time(4)	t_{rr}		49		nS	$I_F=13A, di/dt=100A/\mu s$
Body Diode Reverse Recovery Charge(4)	Q_{rr}		85		nC	

- Notes: 1. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
2. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate
3. Short duration pulse test used to minimize self-heating effect.
4. Guaranteed by design. Not subject to product testing.

HIGH VOLTAGE MOSFET (N-CHANNEL)

Typical Characteristics

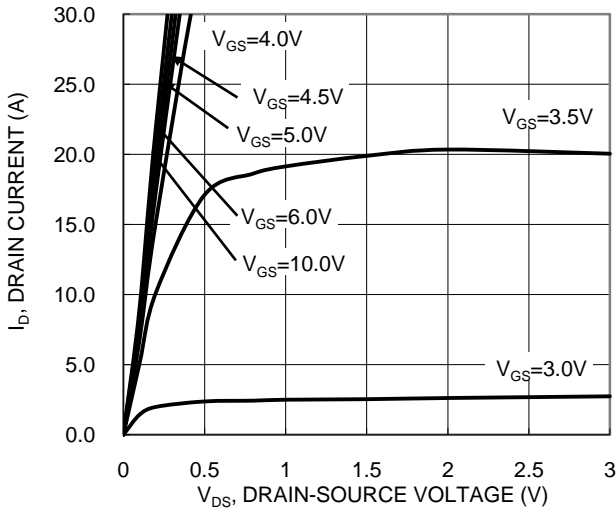


Figure 1. Typical Output Characteristic

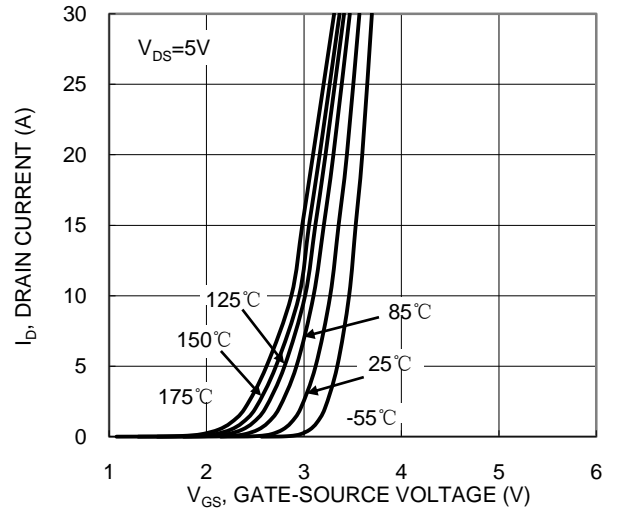


Figure 2. Typical Transfer Characteristic

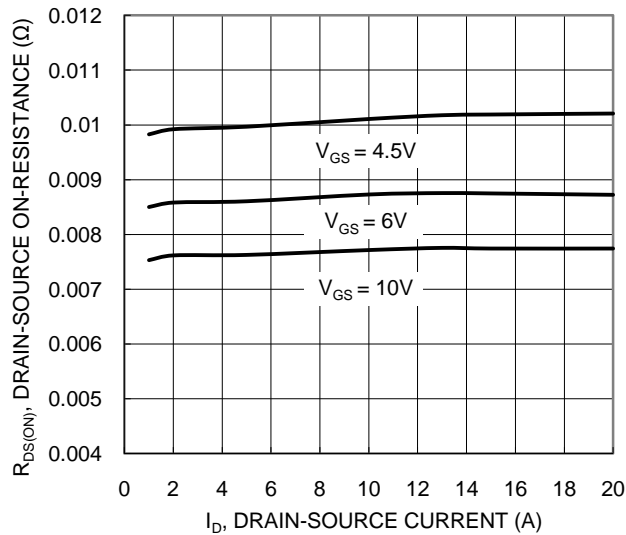


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

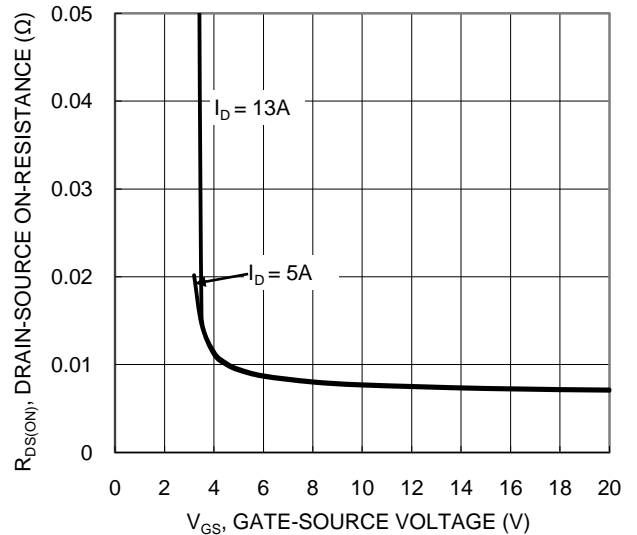


Figure 4. Typical Transfer Characteristic

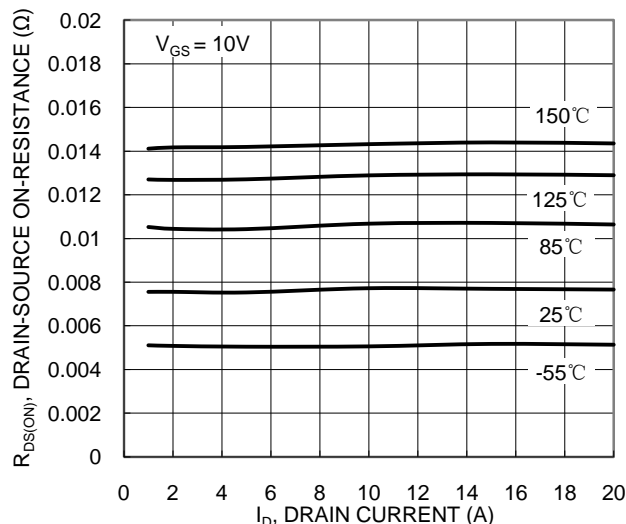


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

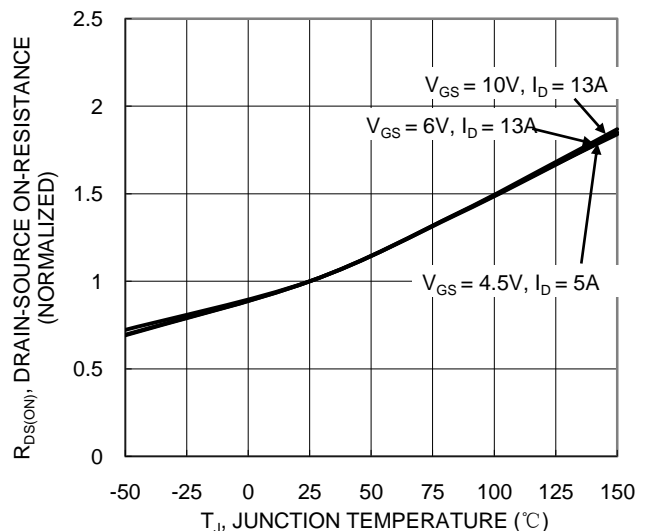


Figure 6. On-Resistance Variation with Temperature

HIGH VOLTAGE MOSFET (N-CHANNEL)

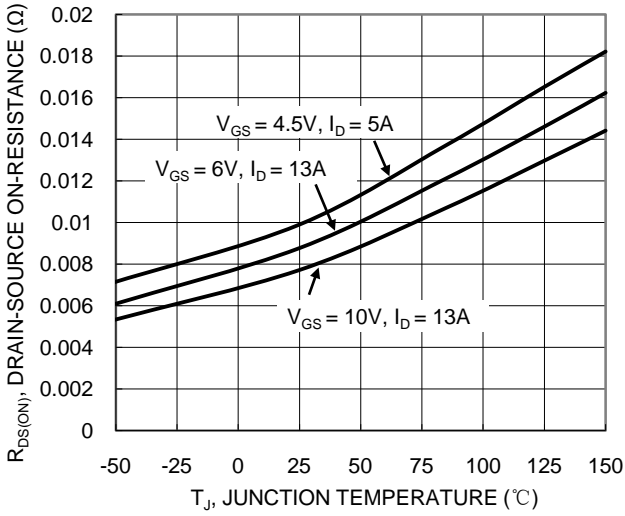


Figure 7. On-Resistance Variation with Temperature

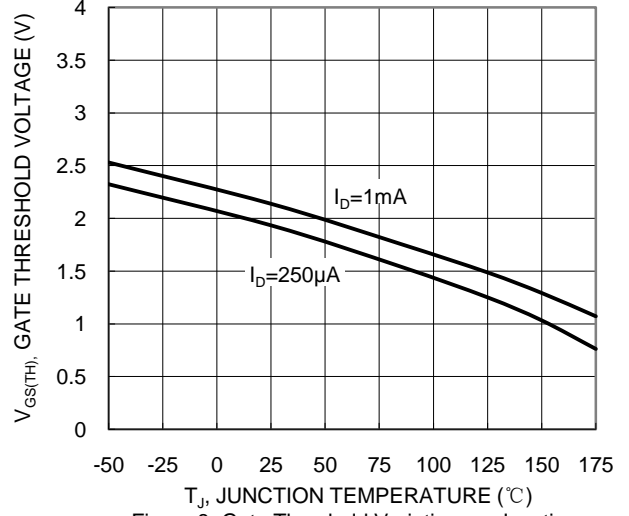


Figure 8. Gate Threshold Variation vs. Junction Temperature

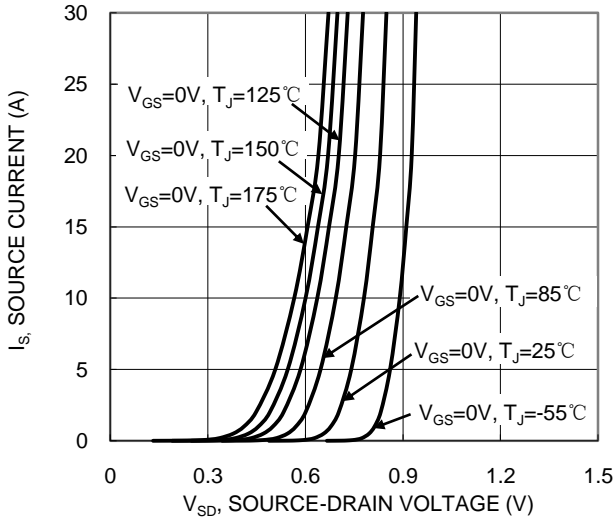


Figure 9. Diode Forward Voltage vs Current

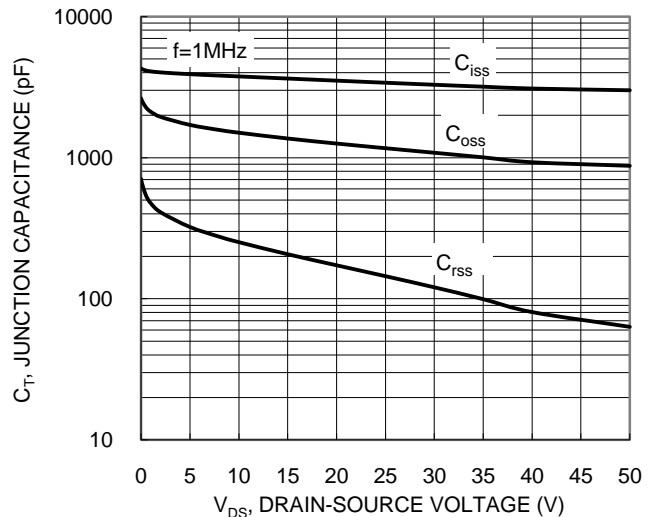


Figure 10. Typical Junction Capacitance

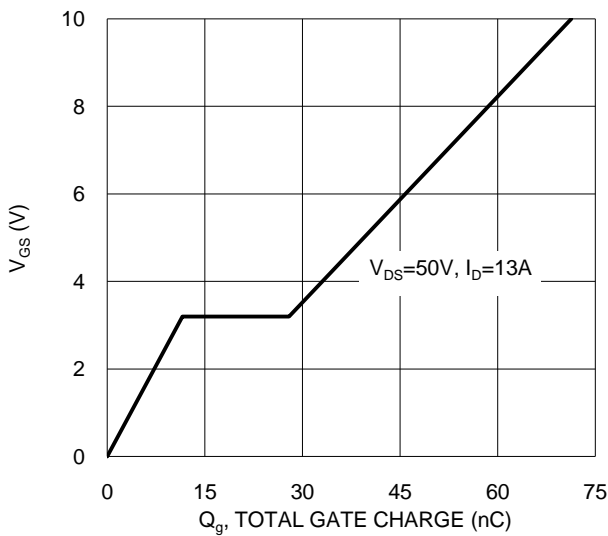


Figure 11. Gate Charge

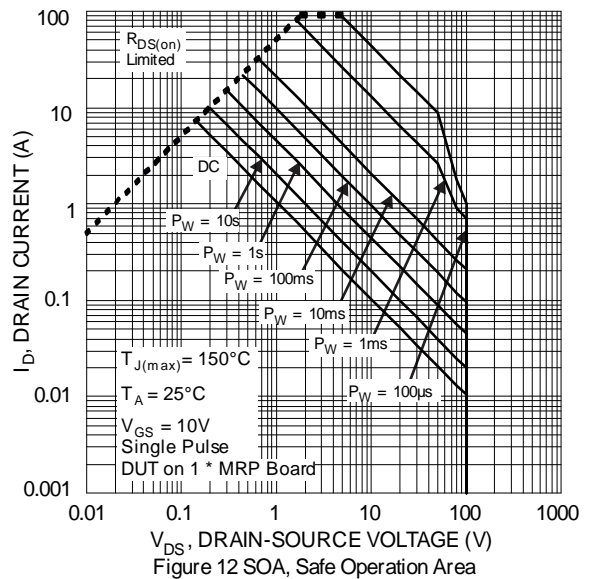


Figure 12 SOA, Safe Operation Area

HIGH VOLTAGE MOSFET (N-CHANNEL)

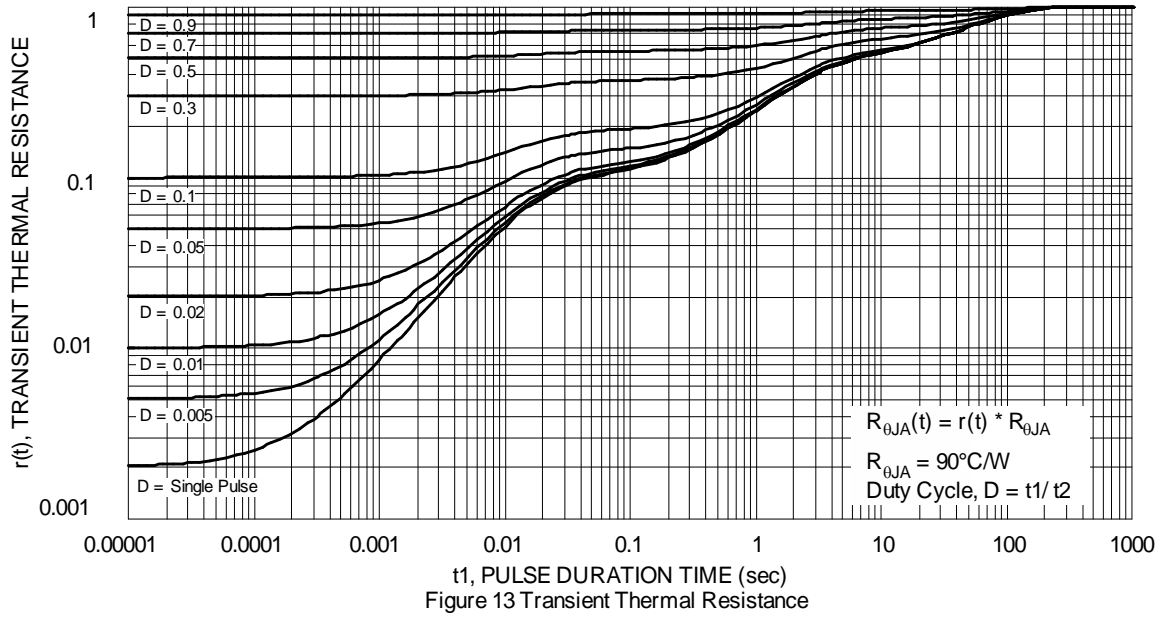
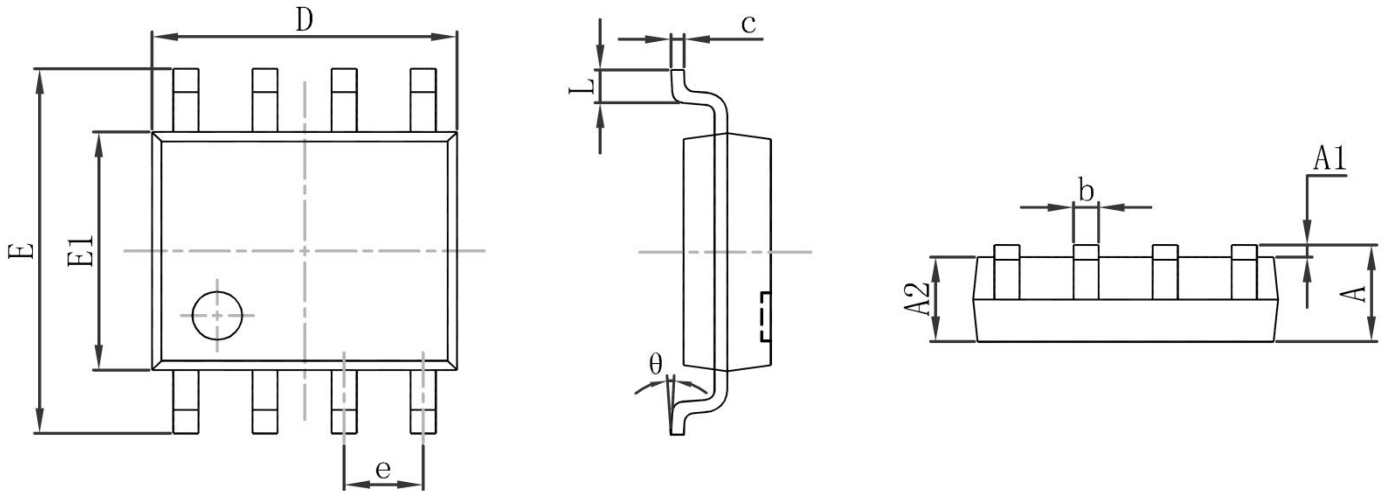


Figure 13 Transient Thermal Resistance

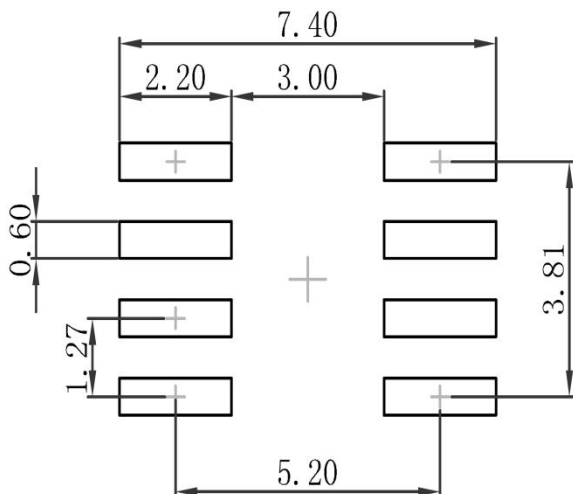
HIGH VOLTAGE MOSFET (N-CHANNEL)

SOP-8 Package Outline Dimensions



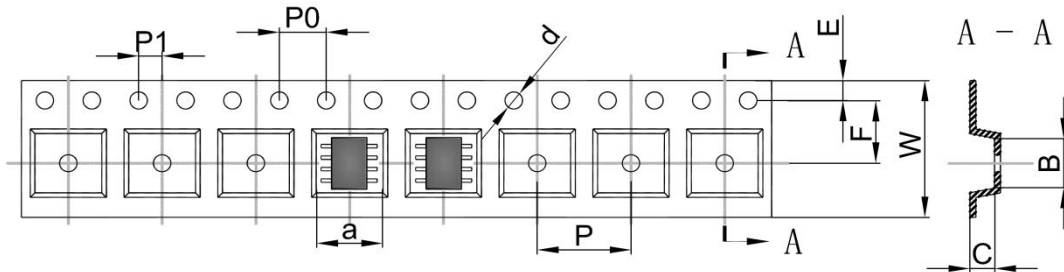
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270(BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

SOP-8 Suggested Pad Layout

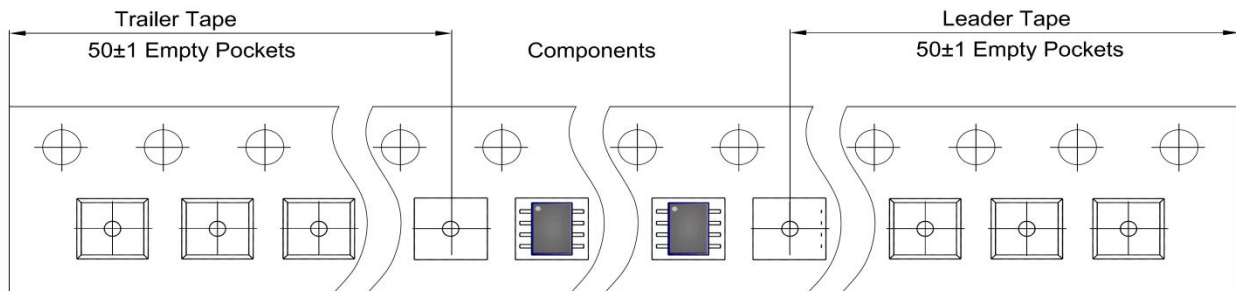
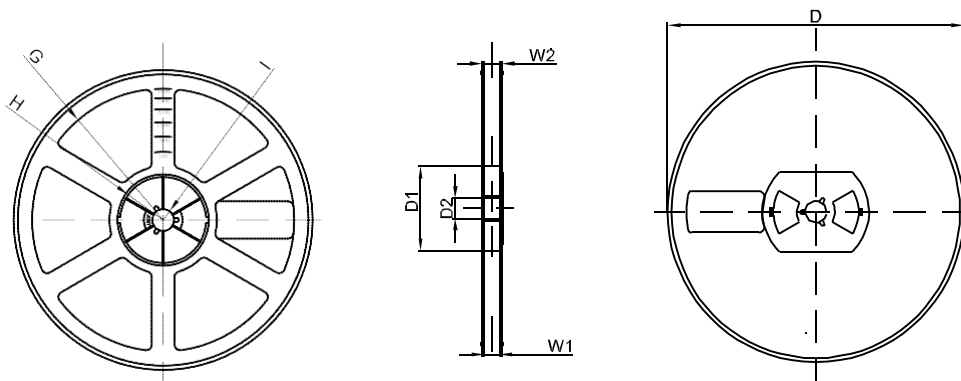


Note:

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

HIGH VOLTAGE MOSFET (N-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