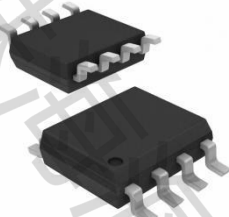


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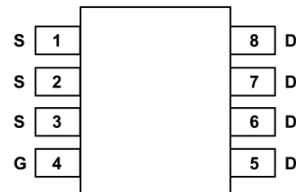
Dual N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY

V _{DS} (V)	R _{DS(on)} (Ω)	Q _g (Typ.)	I _D (A)
30	① 16.4m@V _{GS} = 10V	7.1	9.1
	② 11.8m@V _{GS} = 10V		11



SOP-8



Top View

FEATURES

- TrenchFET® Power MOSFET
- 100 % R_g Tested
- 100 % UIS Tested

APPLICATIONS

- Low Current DC/DC
- Notebook System Power

Absolute Maximum Ratings

	Parameter	①Max.	②Max.	Uni
V _{DS}	Drain-to-Source Voltage		30	V
V _{GS}	Gate-to-Source Voltage		± 20	
I _D @ T _A = 25°C	Continuous Drain Current, V _{GS} @ 10V	9.1	11	A
I _D @ T _A = 70°C	Continuous Drain Current, V _{GS} @ 10V	7.3	8.8	
I _{DM}	Pulsed Drain Current	76	85	
P _D @ T _A = 25°C	Power Dissipation	2.0	2.0	W
P _D @ T _A = 70°C	Power Dissipation	1.3	1.3	
	Linear Derating Factor	0.016	0.016	W/°
T _J	Operating Junction and		-55	°C

Thermal Resistance

	Parameter	①Max.	②Max.	Units
R _{JL}	Junction-to-Drain Lead	42	42	°C/W
R _{JA}	Junction-to-Ambient	62.5	62.5	

Static @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Par		Min.	Typ.	Max.	Unit	Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	①&②	30			V	$V_{GS} = 0V, I_D = 250\mu A$
V_{DSS}/T_J	Breakdown Voltage Temp. Coefficient	①		0.024		$V/^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = 1\text{mA}$
		②		0.024			
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	①		13.7	16.4	m	$V_{GS} = 10V, I_D = 9.1A$
				17.1	20.5		$V_{GS} = 4.5V, I_D = 7.3A$
		②		9.8	11.8		$V_{GS} = 10V, I_D = 11A$
				11.5	13.7		$V_{GS} = 4.5V, I_D = 8.8A$
$V_{GS(th)}$	Gate Threshold Voltage	①&②	1.35	1.8	2.35	V	①: $V_{DS} = V_{GS}, I_D = 25\mu A$
$V_{GS(th)}/T_J$	Gate Threshold Voltage Coefficient	①		-4.6		$\text{mV}/^\circ\text{C}$	②: $V_{DS} = V_{GS}, I_D = 50\mu A$
		②		-4.9			
I_{DSS}	Drain-to-Source Leakage Current	①&②			1.0	μA	$V_{DS} = 24V, V_{GS} = 0V$
		①&②			150		$V_{DS} = 24V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	①&②			100	nA	$V_{GS} = 20V$
	Gate-to-Source Reverse Leakage	①&②			-100		$V_{GS} = -20V$
g_{fs}	Forward Transconductance	①	19			S	$V_{DS} = 15V, I_D = 7.0A$
		②	24				$V_{DS} = 15V, I_D = 8.8A$
Q_g	Total Gate Charge	①		6.7	10	nC	① $V_{DS} = 15V$ $V_{GS} = 4.5V, I_D = 7.0A$ ② $V_{DS} = 15V$ $V_{GS} = 4.5V, I_D = 8.8A$
		②		14	21		
Q_{gs1}	Pre-Vth Gate-to-Source Charge	①		1.3			
		②		3.0			
Q_{gs2}	Post-Vth Gate-to-Source Charge	①		0.7			
		②		1.3			
Q_{gd}	Gate-to-Drain Charge	①		2.5			
		②		4.9			
Q_{godr}	Gate Charge Overdrive	①		2.2			
		②		4.8			
Q_{sw}	Switch Charge ($Q_{gs2} + Q_{gd}$)	①		3.2		nC	$V_{DS} = 16V, V_{GS} = 0V$
		②		6.2			
Q_{oss}	Output Charge	①		4.5		nC	$V_{DS} = 16V, V_{GS} = 0V$
		②		9.0			
R_G	Gate Resistance	①		2.6	4.7	ns	① $V_{DD} = 15V, V_{GS} = 4.5V$ $I_D = 7.0A$ ② $V_{DD} = 15V, V_{GS} = 4.5V$ $I_D = 8.8A$ Clamped Inductive Load
		②		3.0	5.0		
$t_{d(on)}$	Turn-On Delay Time	①		6.0			
		②		8.0			
t_r	Rise Time	①		9.3			
		②		14			
$t_{d(off)}$	Turn-Off Delay Time	①		8.0			
		②		13			
t_f	Fall Time	①		3.4			
		②		5.3			
C_{iss}	Input Capacitance	①		850		pF	$V_{GS} = 0V$ $V_{DS} = 15V$ $f = 1.0\text{MHz}$
		②		1790			
C_{oss}	Output Capacitance	①		190			
		②		390			
C_{rss}	Reverse Transfer Capacitance	①		88			
		②		190			

Avalanche Characteristics

	Parameter	Typ	① Max.	② Max.	Units
E_{AS}	Single Pulse Avalanche Energy		10	15	mJ
I_{AR}	Avalanche Current		7.0	8.8	A

Diode Characteristics

	Parameter		Min.	Typ.	Max.	Uni	Condi
I_S	Continuous Source Current (Body Diode)	①			2.8	A	MOSFET symbol showing the integral reverse p-n junction diode.
		②			2.8		
I_{SM}	Pulsed Source Current (Body Diode)	①			76	A	
		②			85		
V_{SD}	Diode Forward Voltage	①			1.0	V	$T_J = 25^\circ\text{C}$, $I_S = 7.3\text{A}$, $V_{GS} = 0\text{V}$ $T_J = 25^\circ\text{C}$, $I_S = 8.8\text{A}$, $V_{GS} = 0\text{V}$
		②			1.0		
t_{rr}	Reverse Recovery Time	①		12	18	ns	① $T_J = 25^\circ\text{C}$, $I_F = 7.0\text{A}$, $V_{DD} = 15\text{V}$, $di/dt = 100\text{A}/\mu\text{s}$ ② $T_J = 25^\circ\text{C}$, $I_F = 8.8\text{A}$,
		②		16	24		
Q_{rr}	Reverse Recovery Charge	①		4.1	6.1	nC	
		②		5.9	8.9		

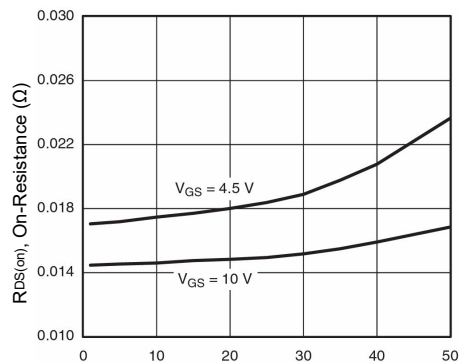


Fig 1. On-Resistance vs. Drain Current

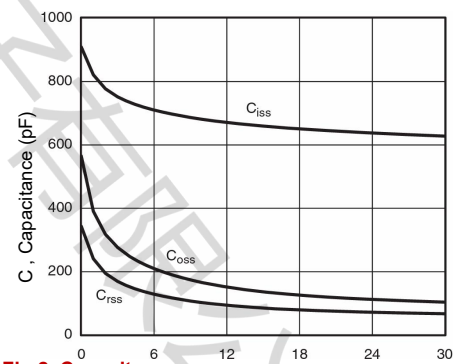


Fig 2. Capacitance

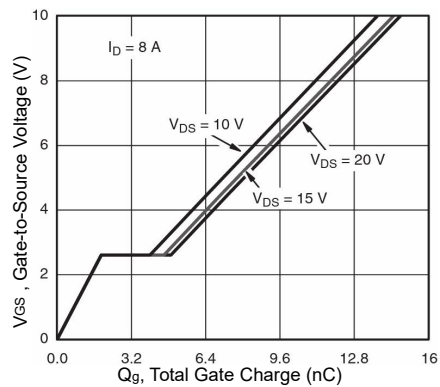


Fig 3. Gate Charge

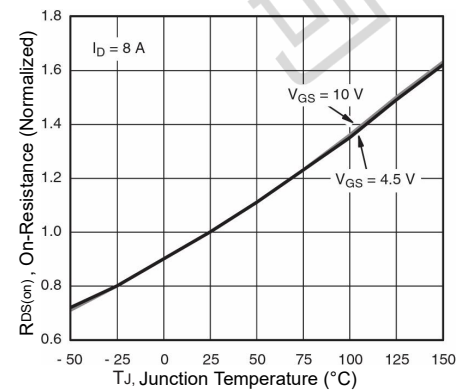


Fig 4. On-Resistance vs. Junction Temperature

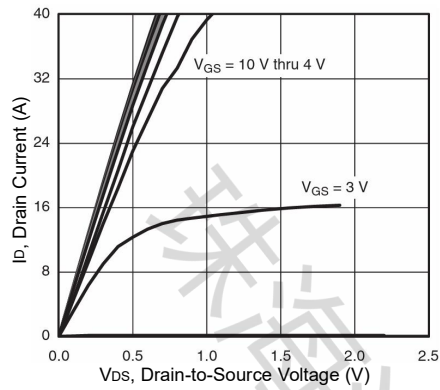


Fig 5. Output Characteristics

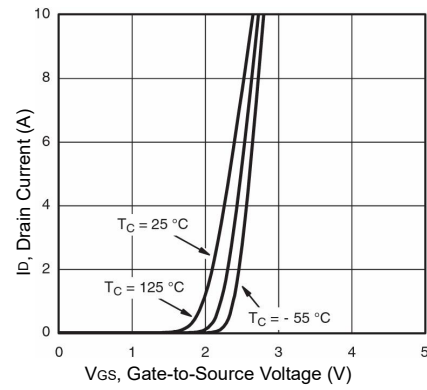


Fig 6. Transfer Characteristics

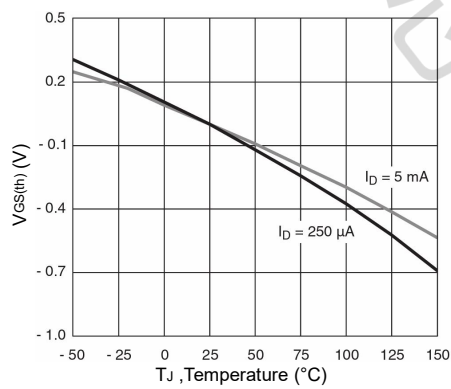


Fig 7. Threshold Voltage

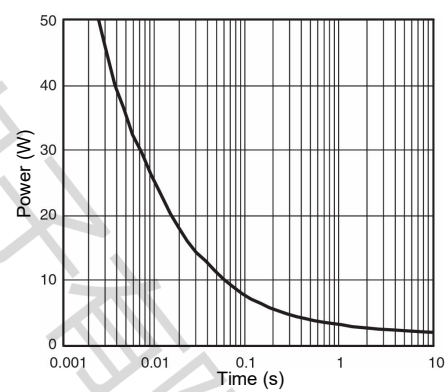


Fig 8. Single Pulse Power, Junction-to-Ambient

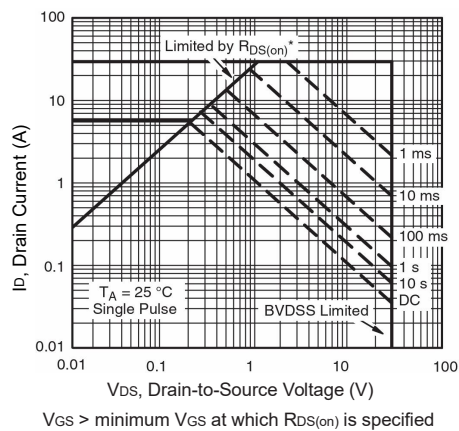


Fig 9. Safe Operating Area, Junction-to-Ambient

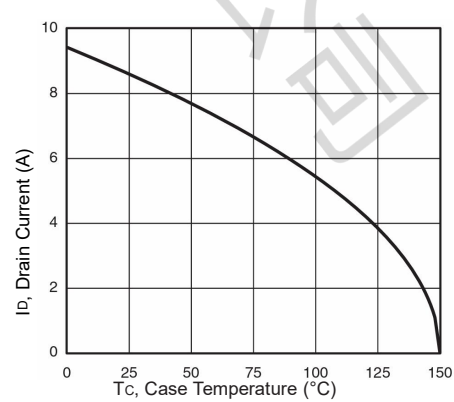


Fig 10. Current Derating

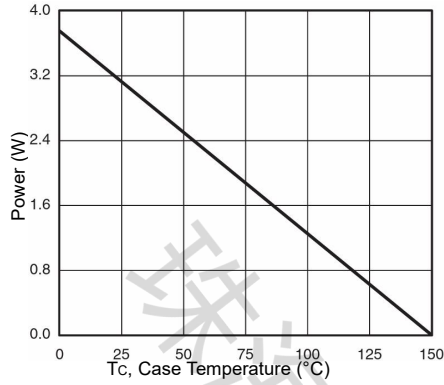


Fig 11. Power, Junction-to-Foot

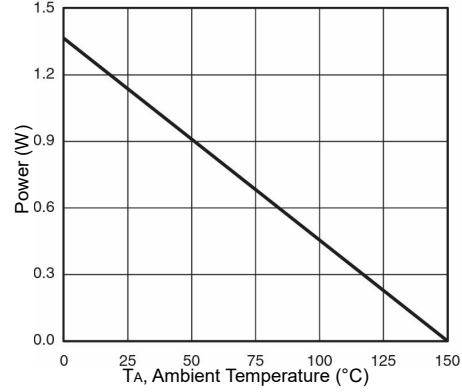


Fig 12. Power, Junction-to-Ambient

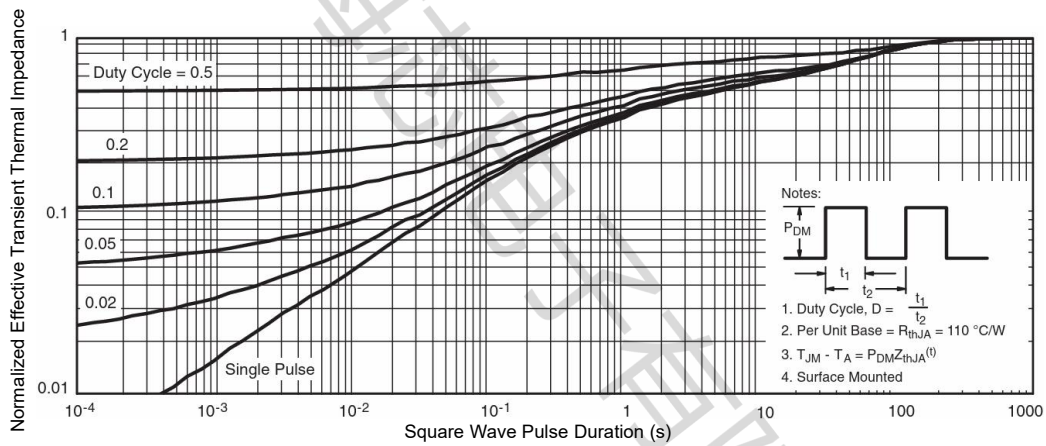


Fig 13. Normalized Thermal Transient Impedance, Junction-to-Ambient

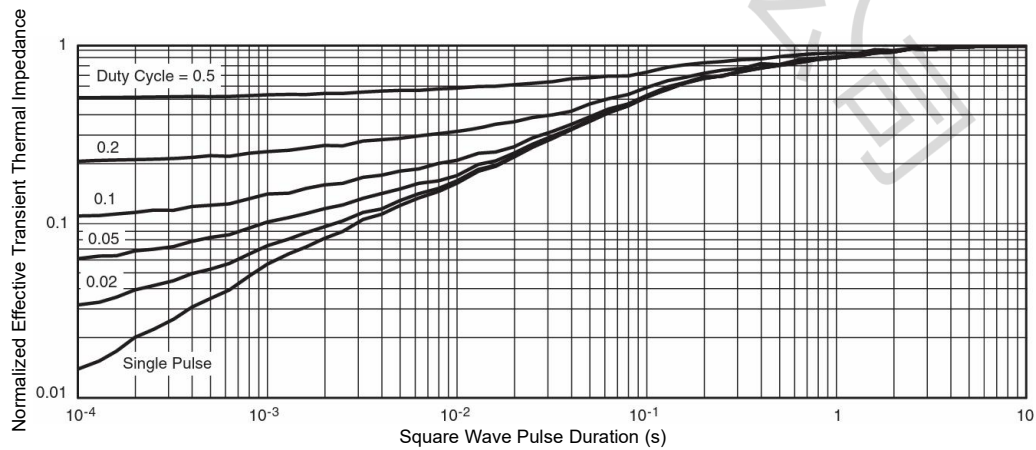
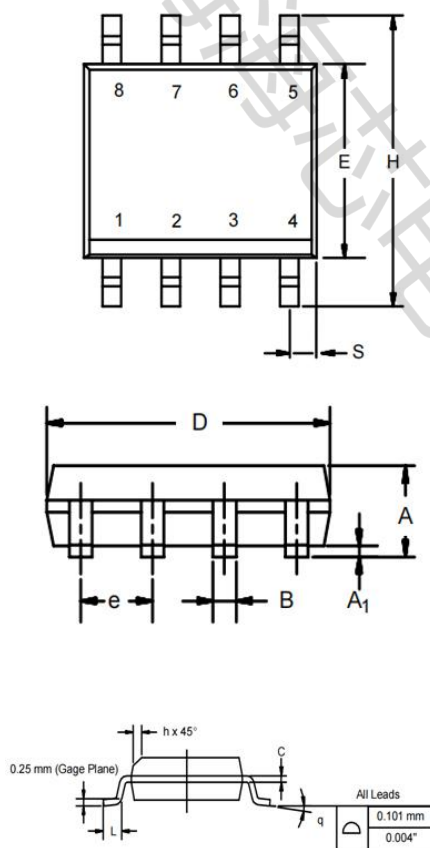


Fig 16. Normalized Thermal Transient Impedance, Junction-to-Foot

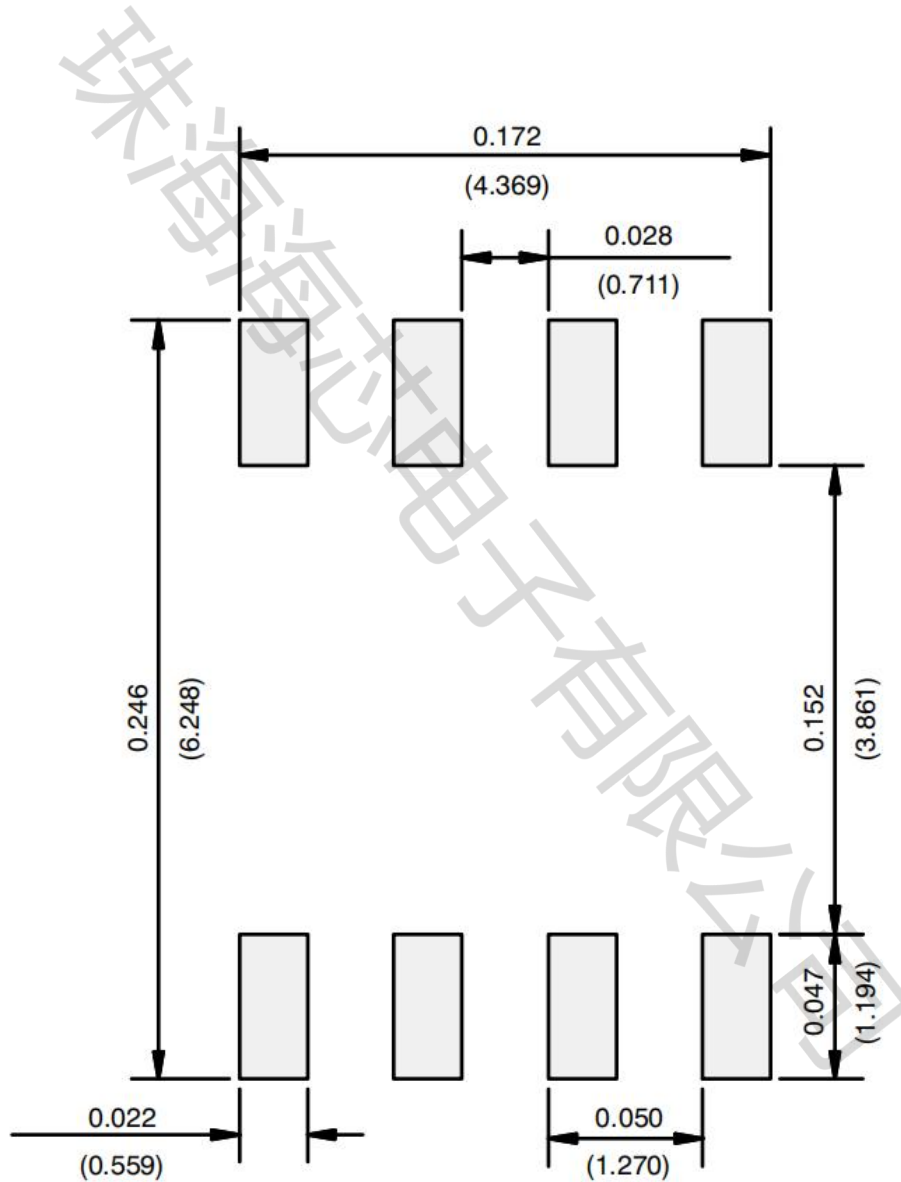
SOP-8 Package Outline

Dimensions are shown in millimeters (inches)



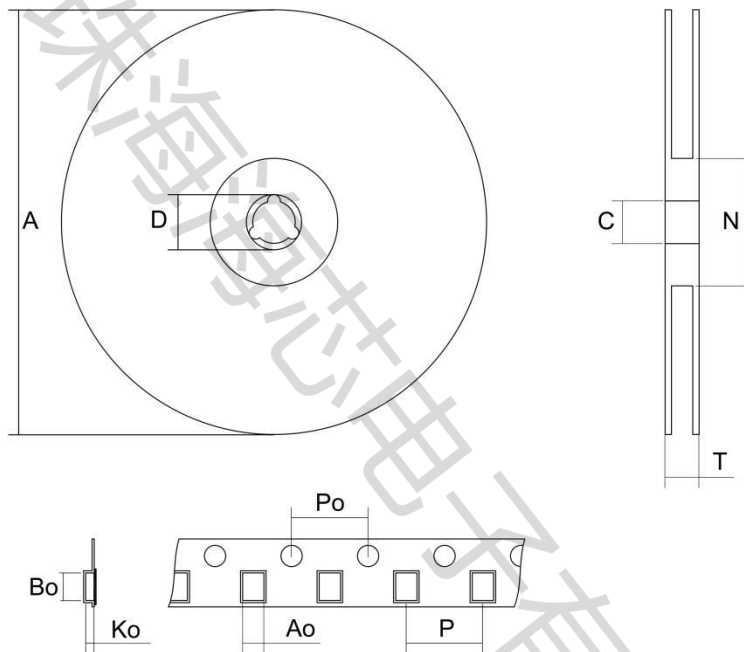
DIM	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A ₁	0.10	0.20	0.004	0.008
B	0.35	0.51	0.014	0.020
C	0.19	0.25	0.0075	0.010
D	4.80	5.00	0.189	0.196
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
h	0.25	0.50	0.010	0.020
L	0.50	0.93	0.020	0.037
q	0°	8°	0°	8°
S	0.44	0.64	0.018	0.026

RECOMMENDED MINIMUM PADS FOR SOP-8

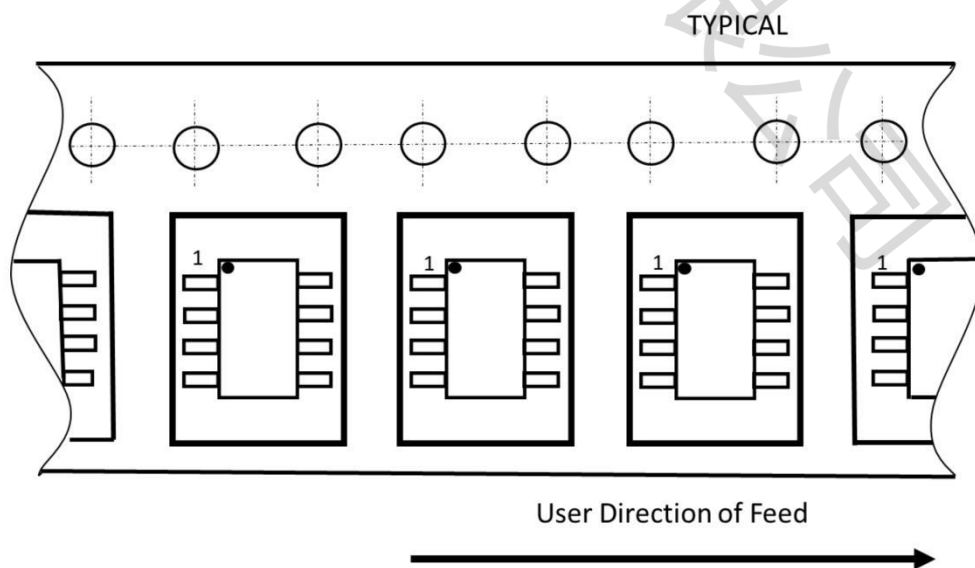


SOP-8 packing information

SOP-8 tape and reel



Tape orientation



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