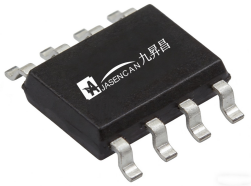
SOP8 Plastic-Encapsulate MOSFETS

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
-30V	9mΩ@-10V 13mΩ@-4.5V	-15A

SOP8



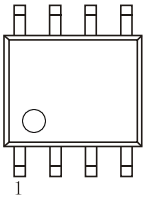
DESCRIPTION

The **JS4407L** combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications

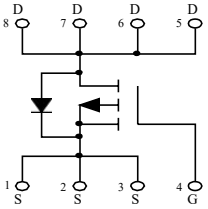
APPLICATIONS

- Battery protection applications
- Load switch

MARKING



Equivalent Circuit



Package Marking and Ordering Information

Product	Package	Marking	Packing	Min Unit Quantity
JS4407L	SOP8	*	3000PCS/Reel	3000PCS

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±25	V
Continuous Drain Current	I_D ①	-15	A
Pulsed Drain Current	I_{DM} ②	-42	A
Single Pulsed Avalanche Energy	E_{AS} ③	107	mJ
Maximum Power Dissipation	P_D ⑥	3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	41.7	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

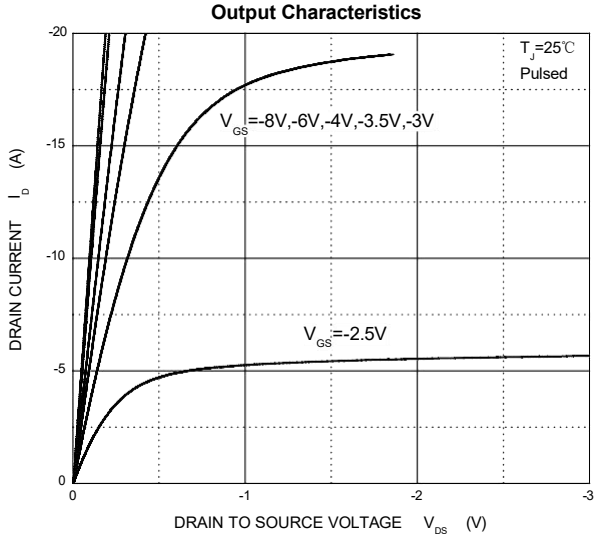
Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA		-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V, V_{GS} =0V	T_J =25℃			-1	μA
			T_J =125℃			-200	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V				±100	nA
On characteristics ④							
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA		-1.0	-1.5	-2.2	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-10A			9	15	mΩ
		V_{GS} =-4.5V, I_D =-8A			13	20	mΩ
Forward transconductance	g_{FS}	V_{DS} =-5V, I_D =-10A		25			S
Dynamic characteristics ④ ⑤							
Input capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V, f =1MHz			2885	5770	pF
Output capacitance	C_{oss}				341	682	
Reverse transfer capacitance	C_{rss}				305	610	
Switching characteristics ④ ⑤							
Total gate charge	Q_g	V_{DS}=-15V,V_{GS}=-10V, I_D=-10A			48	96	nC
Gate-source charge	Q_{gs}				12	24	
Gate-drain charge	Q_{gd}				14	28	
Turn-on delay time	$t_{d(on)}$	V_{DS}=-15V,VGS=-10V, R_L=1.25Ω, R_G=3Ω			16		ns
Turn-on rise time	t_r				12		
Turn-off delay time	$t_{d(off)}$				45		
Turn-off fall time	t_f				21		
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=-2A				-1.2	V
Continuous drain-source diode forward current	I_S ①					-11	A
Pulsed drain-source diode forward current	I_{SM} ②					-42	A

Notes:

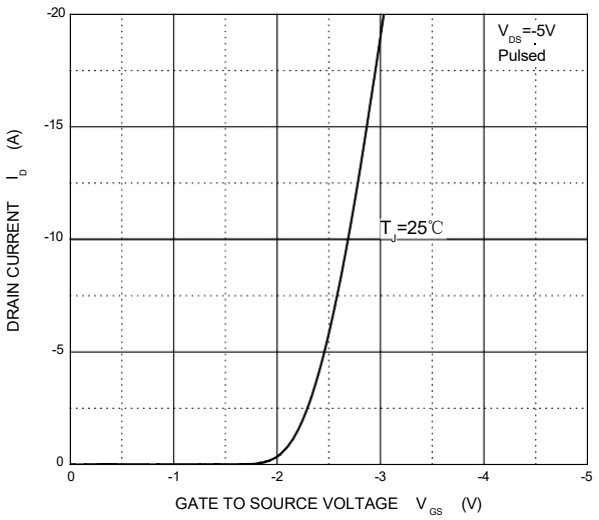
1. T_C=25℃ Limited only by maximum temperature allowed.
2. P_W≤10μs, Duty cycle≤1%.
3. EAS condition: V_{DD}=-20V,V_{GS}=-10V, L=0.5mH, R_g=25Ω Starting T_J = 25°℃.
4. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
5. Guaranteed by design, not subject to production.
6. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25℃,t≤10sec.

Typical Characteristics

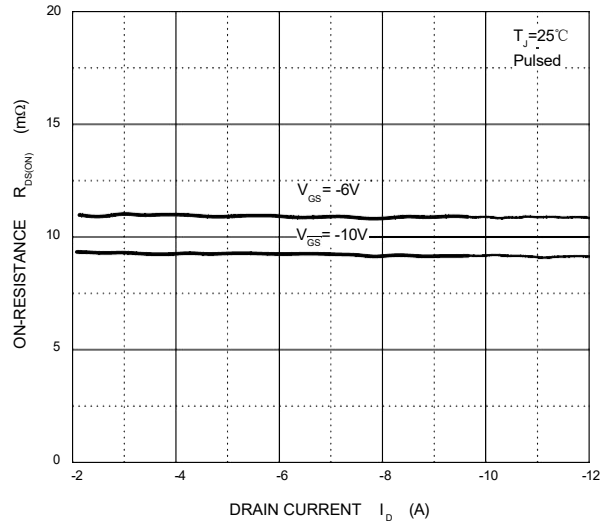
Output Characteristics



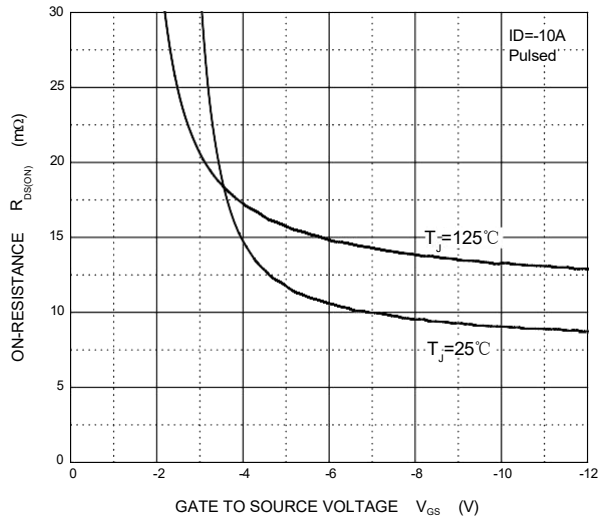
Transfer Characteristics



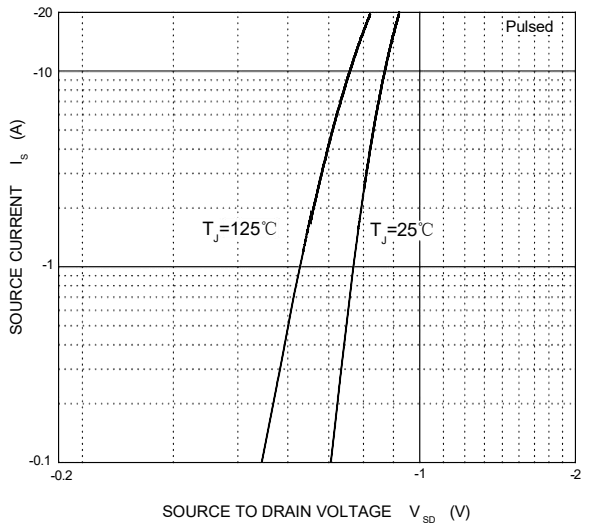
$R_{DS(ON)}$ —— I_D



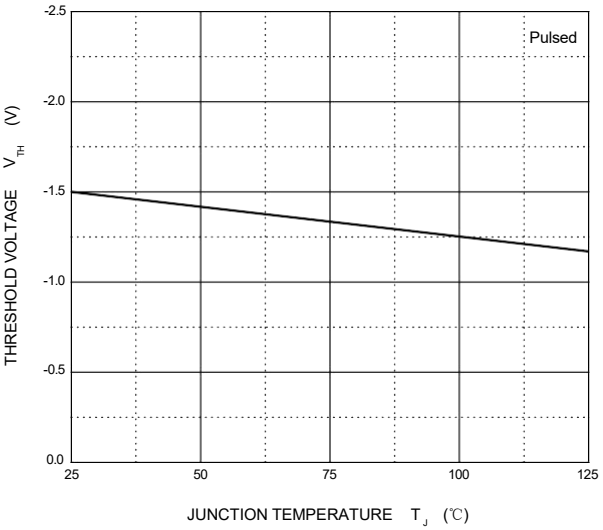
$R_{DS(ON)}$—— V_{GS}



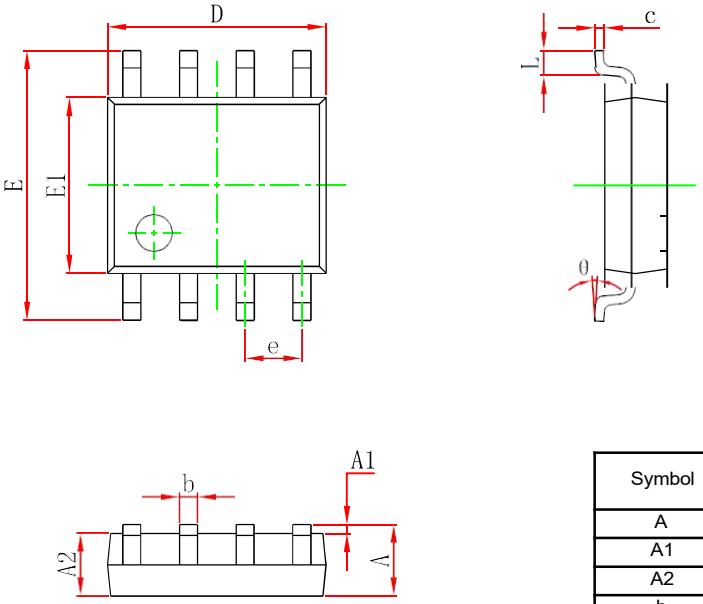
I_S —— V_{SD}



Threshold Voltage

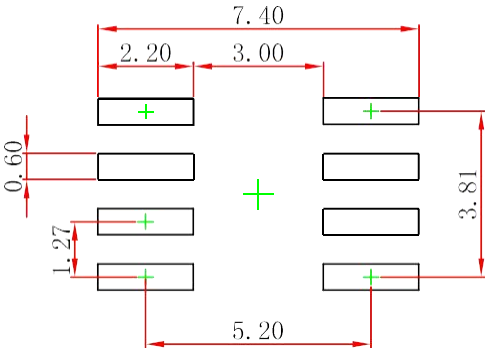


SOP8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	**Max**	**Min**	**Max**
A	1.450	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	4.700	5.100	0.185	0.201
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°

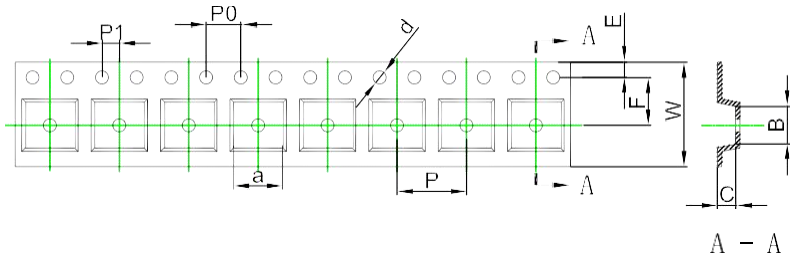
SOP8 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

SOP8 Tape and Reel

SOP8 Embossed Carrier Tape



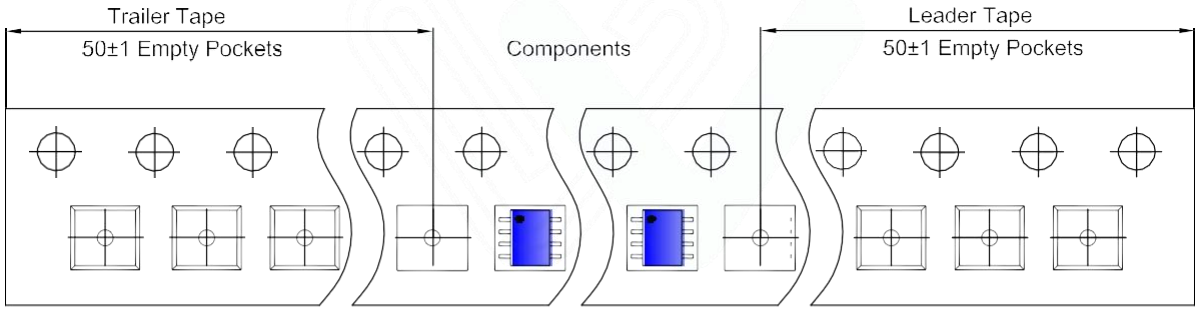
Packaging Description:

SOP8 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2,500 units per 13" or 33cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

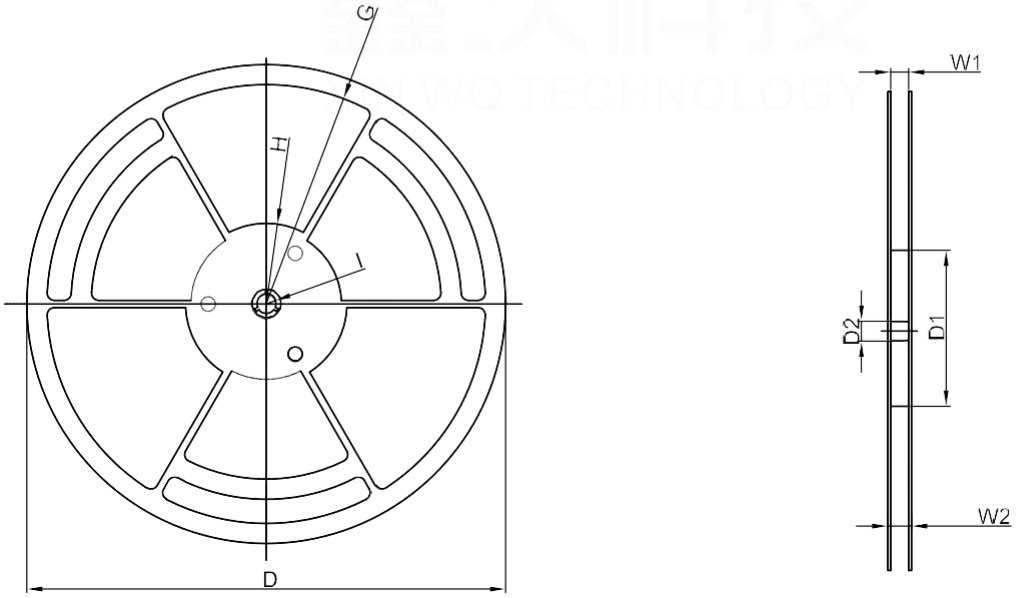
ALL DIM IN mm

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOP8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOP8 Tape Leader and Trailer



SOP8 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