



### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
20V	10.4mΩ@10V	7A
	11.5mΩ@4.5V	
	12.0mΩ@3.8V	
	14.5mΩ@2.5V	

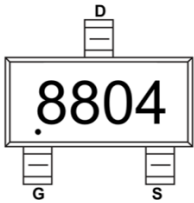
### Feature

- Trench Technology Power MOSFET
- Low  $R_{DS(ON)}$
- Low Gate Charge
- ESD Protected

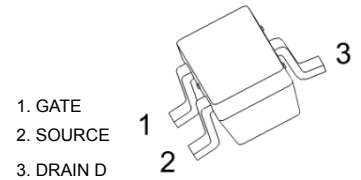
### Application

- Load Switch
- DC/DC Converter

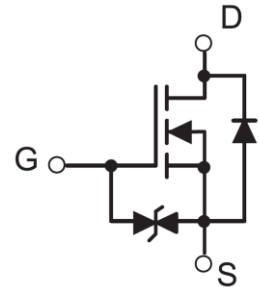
### MARKING:



### SOT-23-3L



### Schematic diagram



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	$V_{DS}$	20	V
Gate - Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1,5</sup>	$I_D$	7	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	28	A
Power Dissipation <sup>4,5</sup>	$P_D$	1.6	W
Thermal Resistance from Junction to Ambient <sup>5</sup>	$R_{\theta JA}$	78	$^\circ\text{C/W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

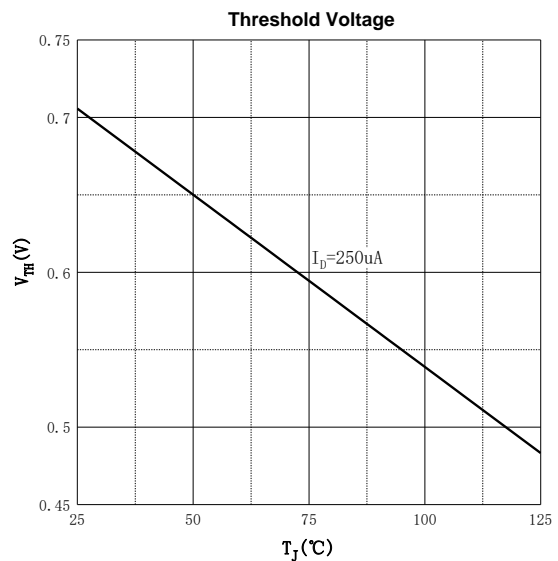
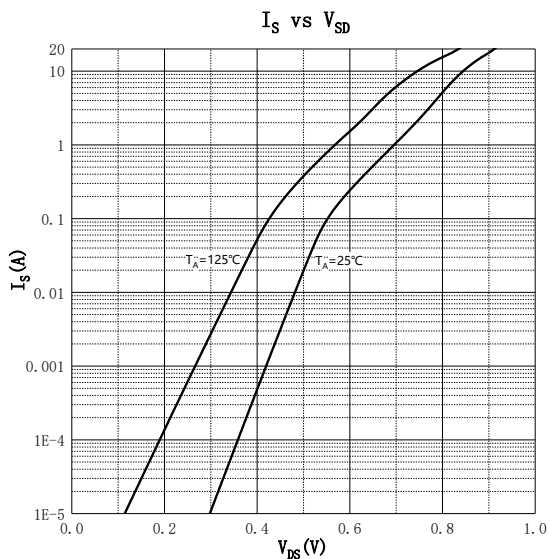
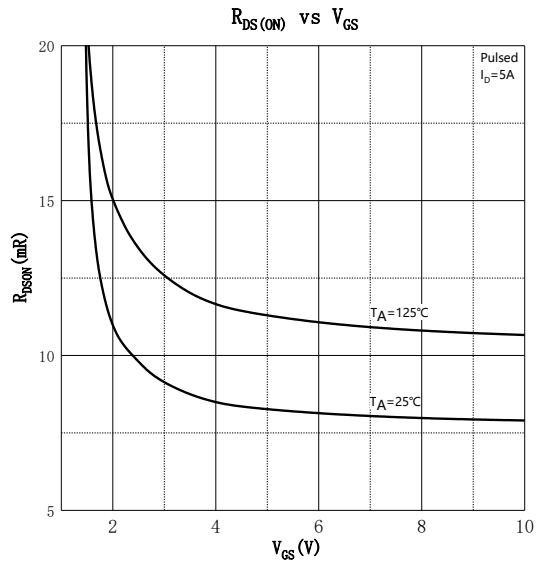
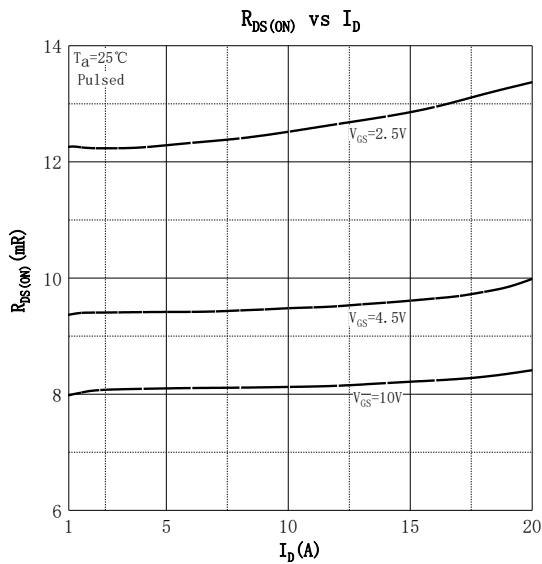
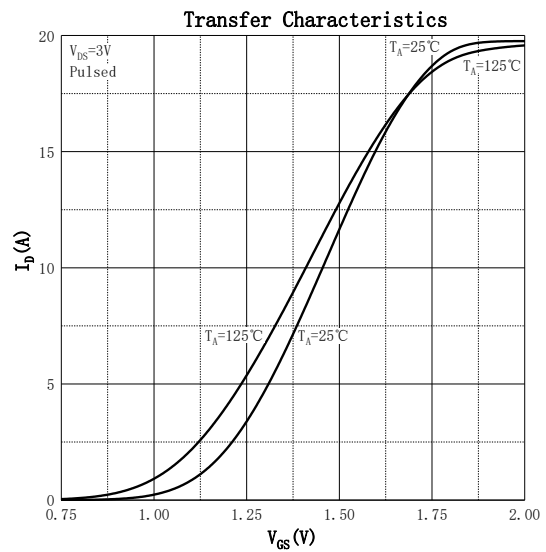
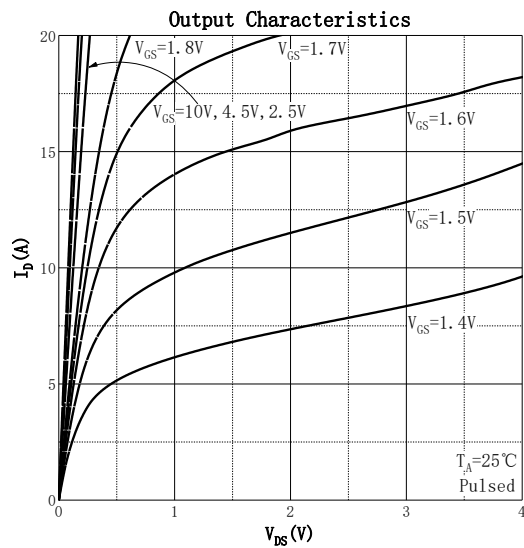
**MOSFET ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C unless otherwise noted)**

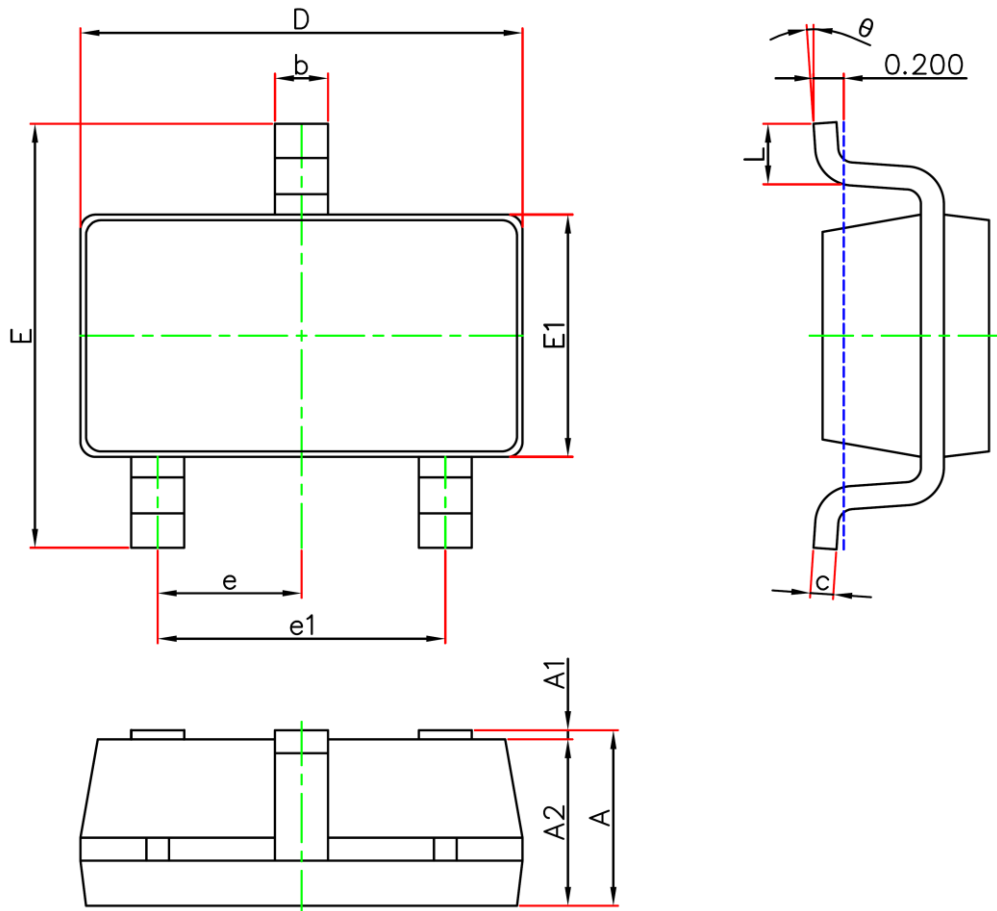
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V			1	μA
Gate - Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V			±5	μA
<b>On Characteristics<sup>3</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.4	0.7	1	V
Drain-source On-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A		10.4	14	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		11.5	15	
		V <sub>GS</sub> = 3.8V, I <sub>D</sub> = 3A		12.3	16	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 3A		14.5	19	
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz		681		pF
Output Capacitance	C <sub>oss</sub>			159		
Reverse Transfer Capacitance	C <sub>rss</sub>			5.18		
<b>Switching Characteristics</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DD</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		17.9		nC
Gate-source Charge	Q <sub>gs</sub>			1.5		
Gate-drain Charge	Q <sub>gd</sub>			4.7		
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 10V RL = 1.2Ω, R <sub>GEN</sub> = 3Ω		2.5		ns
Turn-on Rise Time	t <sub>r</sub>			7.2		
Turn-off Delay Time	t <sub>d(off)</sub>			49		
Turn-off Fall Time	t <sub>f</sub>			10.8		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A			1	V

**Notes :**

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 4.The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.
- 5.Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> = 25°C.

**Typical Characteristics**

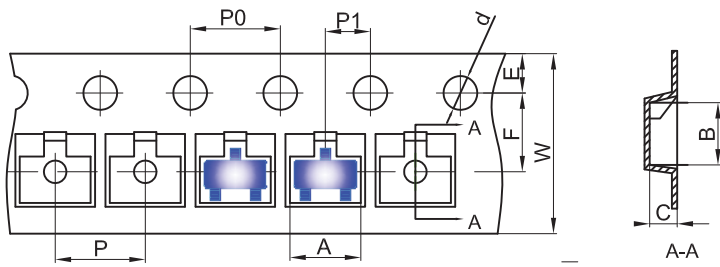


**SOT-23-3L Package Information**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0	0.150	0.000	0.006
A2	1.050	1.250	0.041	0.049
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°

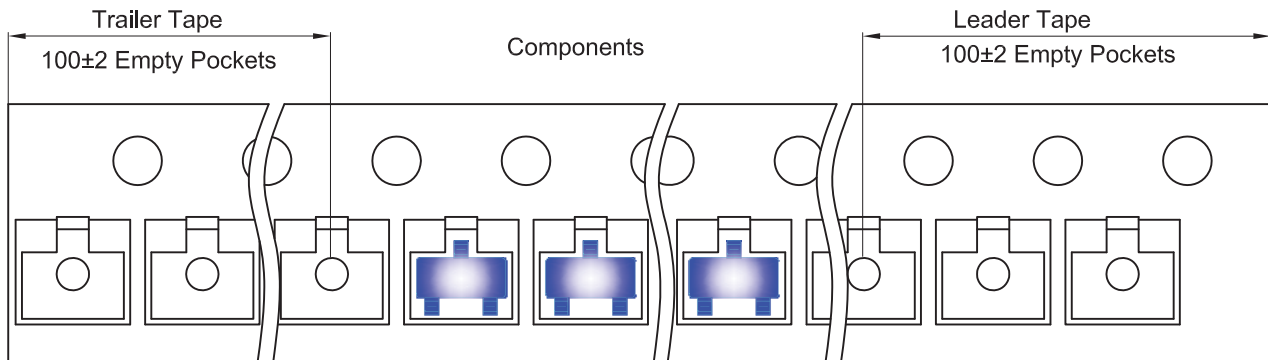
**SOT-23-3L Tape and Reel**

**SOT-23-3L Embossed Carrier Tape**

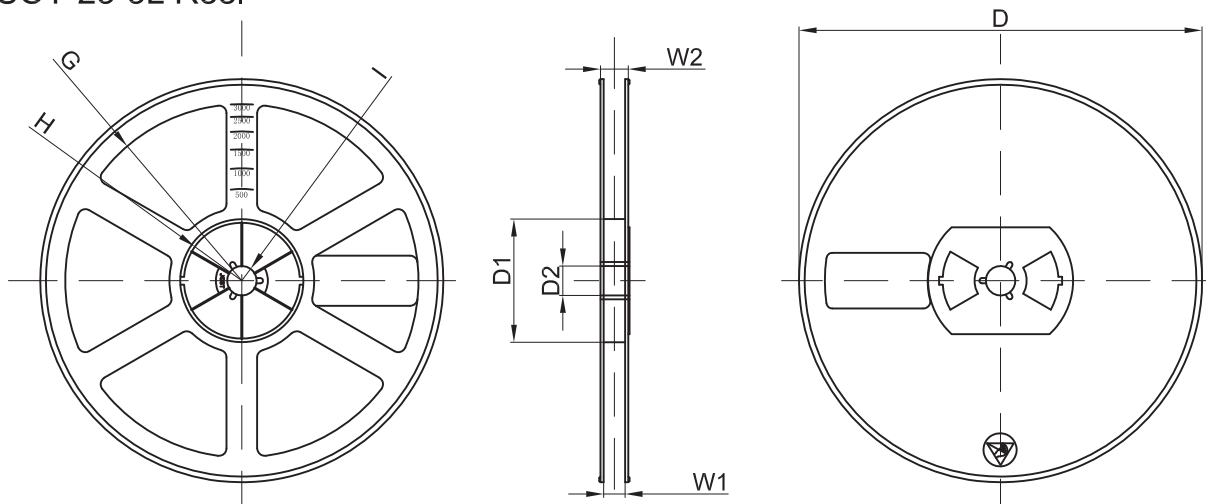


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23-3L	3.18	3.28	1.32	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

**SOT-23-3L Tape Leader and Trailer**



**SOT-23-3L Reel**



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	