

## PWK8804

### 20V N-Channel MOSFET

7A 20V;  $R_{DS(ON)typ}=10.8m\Omega@10V$ ,  $R_{DS(ON)typ}=11.8m\Omega@4.5V$ ,  
 $R_{DS(ON)typ}=12.3m\Omega@3.8V$ ,  $R_{DS(ON)typ}=14.7m\Omega@2.5V$ .

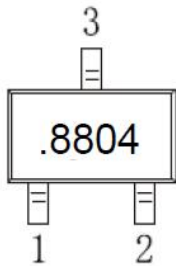
#### FEATURE

- High dense cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- ESD Protected Gate

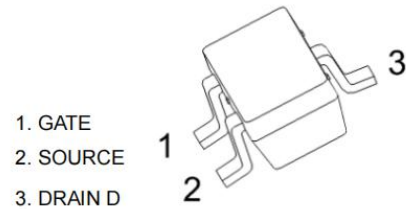
#### Application

- Load Power Switching
- Interfacing Switching

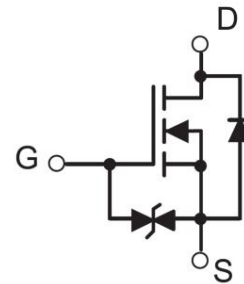
#### MARKING:



#### 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	$I_D$	7	A
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	25	A
Power Dissipation <sup>(2)</sup>	$P_D$	0.5	W
Thermal Resistance from Junction to Ambient <sup>(1)</sup>	$R_{\theta JA}$	248	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^\circ\text{C}$

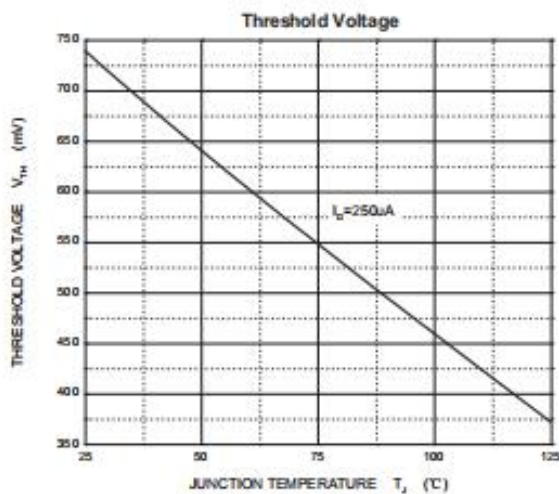
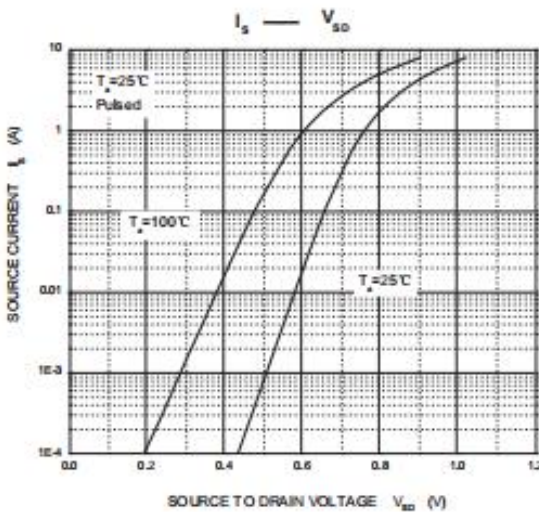
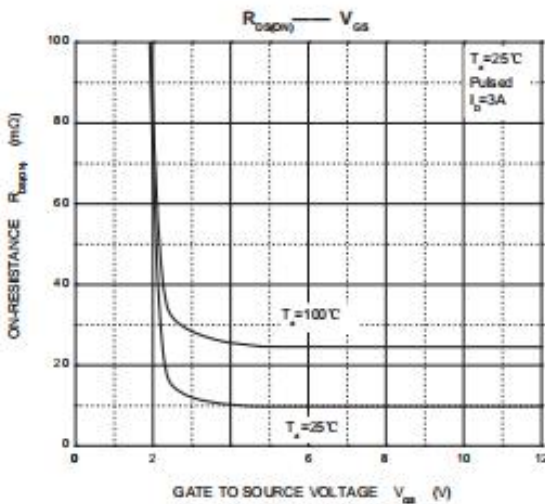
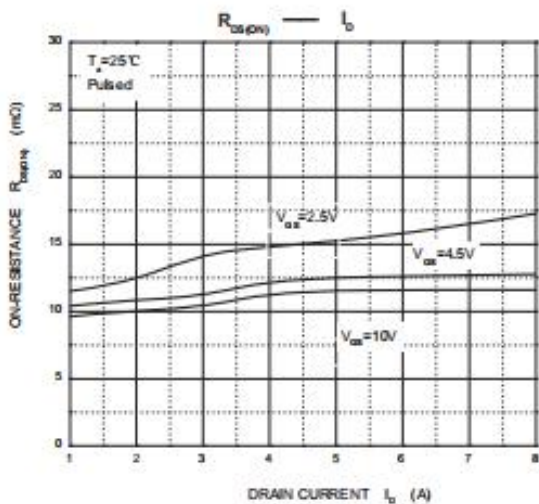
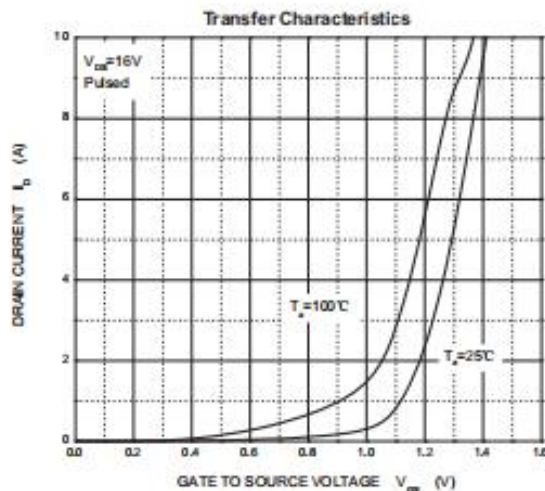
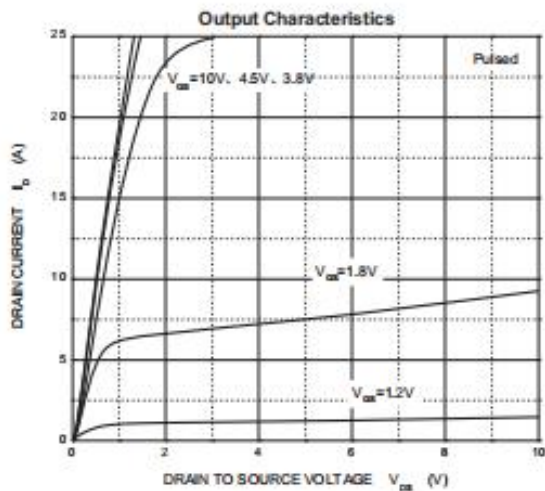
**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>STATIC 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
Gate threshold voltage <sup>(3)</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.5	0.7	1	V
Drain-source on-resistance <sup>(3)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =3A		10.8	14	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		11.8	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		14.7	19	
Forward tranconductance <sup>(3)</sup>	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3A	9			S
Diode Forward voltage <sup>(3)</sup>	V <sub>DS</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A			1	V
<b>DYNAMIC CHARACTERISTICS<sup>(4)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz		1800		pF
Output Capacitance	C <sub>oss</sub>			230		
Reverse Transfer Capacitance	C <sub>rss</sub>			200		
Total gate charge	Q <sub>g</sub>	V <sub>DS</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>GS</sub> =10V, V <sub>DS</sub> =10V, R <sub>L</sub> =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		

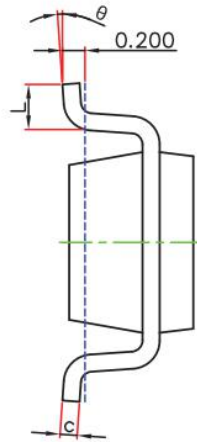
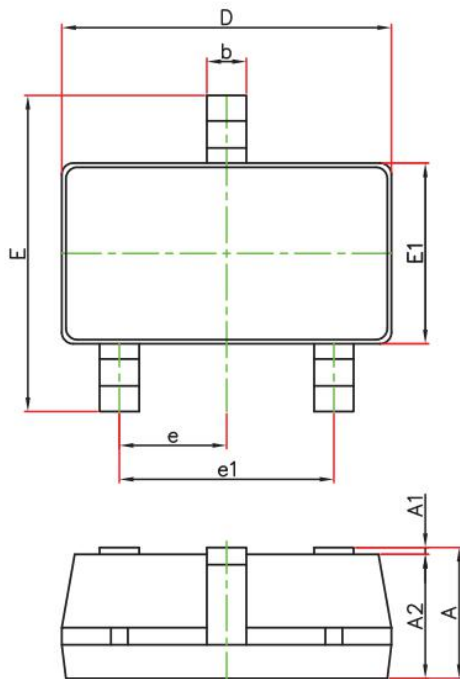
**Notes:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at T<sub>a</sub>=25°C .
3. Pulse Test: Pulse With ≤300μs, Duty Cycle≤2%.
4. Guaranteed by design, not subject to production testing.

**Typical Electrical and Thermal Characteristics**



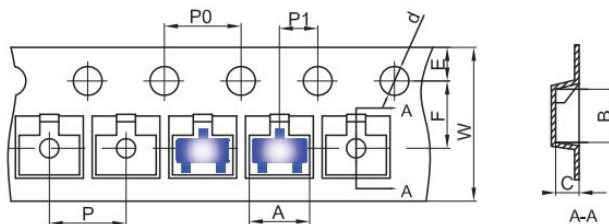
**SOT-23-3L Package Information**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
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
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°

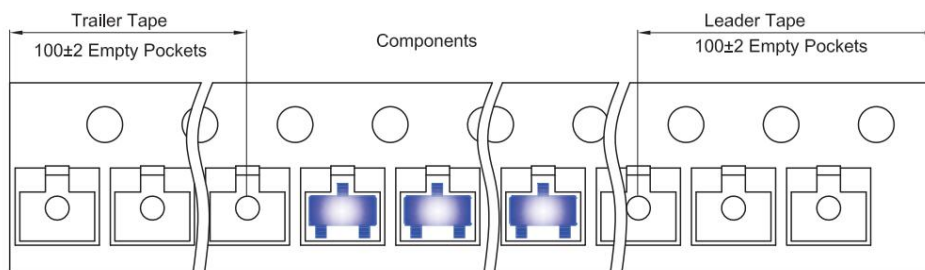
SOT-23-3L Tape and Reel

SOT-23-3L Embossed Carrier Tape

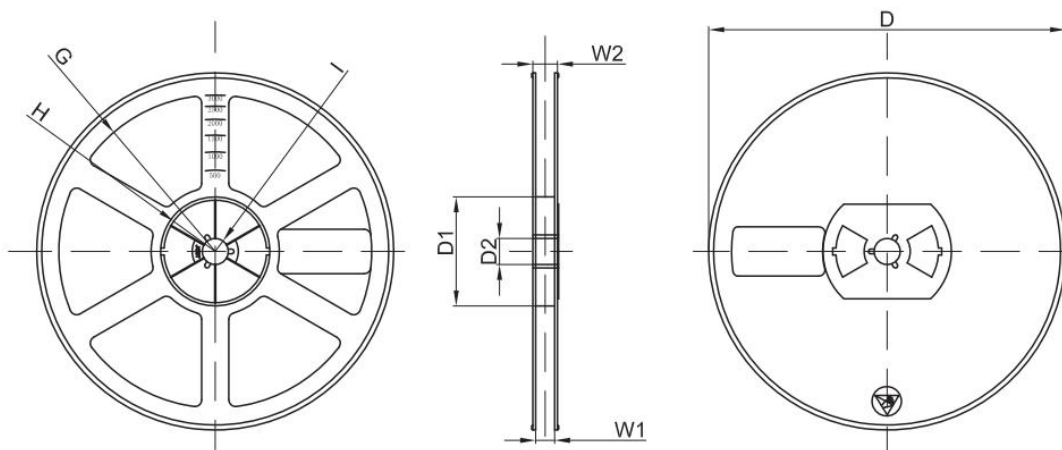


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23-3L	3.18	3.28	1.32	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

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	