

PWK2333

12V P-Channel MOSFET

-6A -12V; $R_{DS(ON)typ}=19m\Omega@-4.5V$, $R_{DS(ON)typ}=21m\Omega@-3.7V$,
 $R_{DS(ON)typ}=27m\Omega@-2.5V$, $R_{DS(ON)typ}=35m\Omega@-1.8V$,
 $R_{DS(ON)typ}=50m\Omega@-1.5V$

FEATURE

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

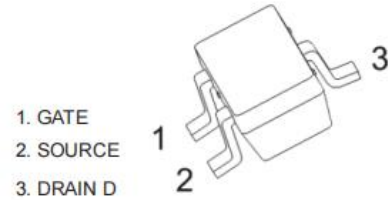
Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

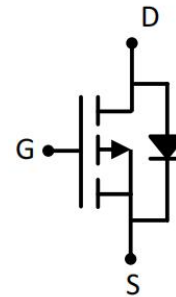
MARKING:



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}	-12	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current ^(1,5)	I_D	-6	A
Pulsed Drain Current ⁽²⁾	I_{DM}	-20	A
Power Dissipation ^(4,5)	P_D	1.7	W
Thermal Resistance from Junction to Ambient ⁽⁵⁾	$R_{\theta JA}$	73.5	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{STG}	-55~ +150	$^\circ\text{C}$

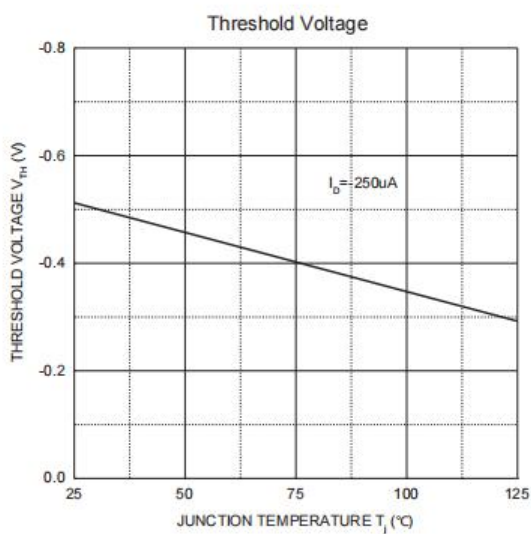
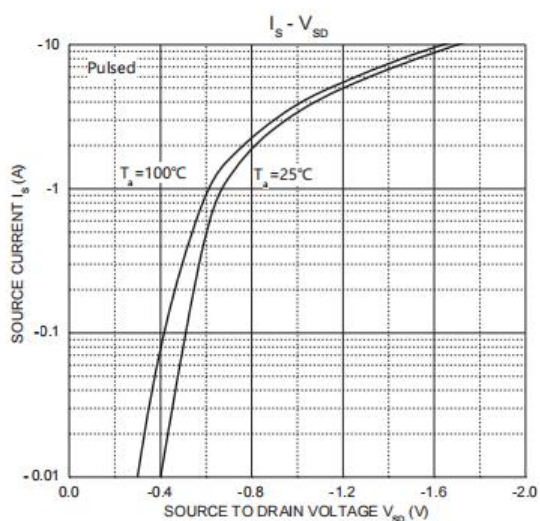
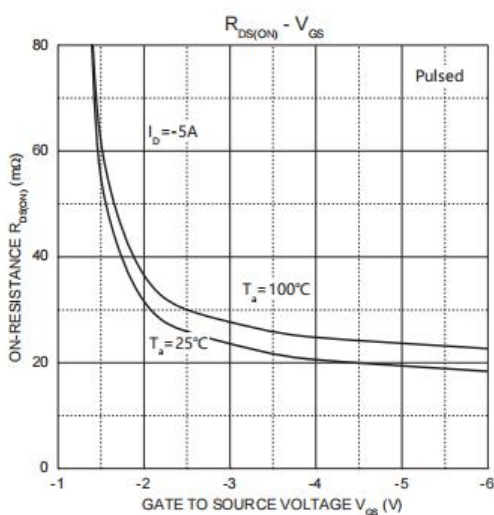
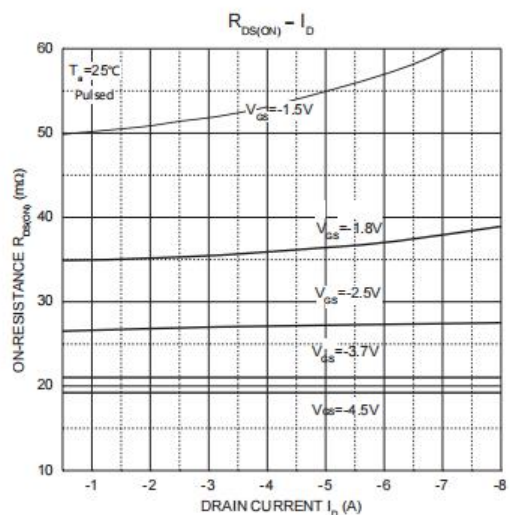
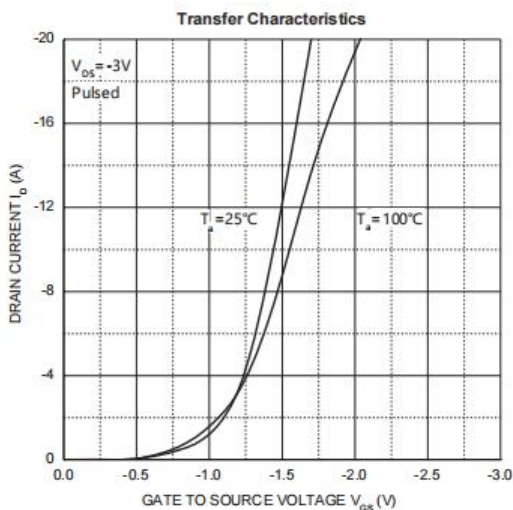
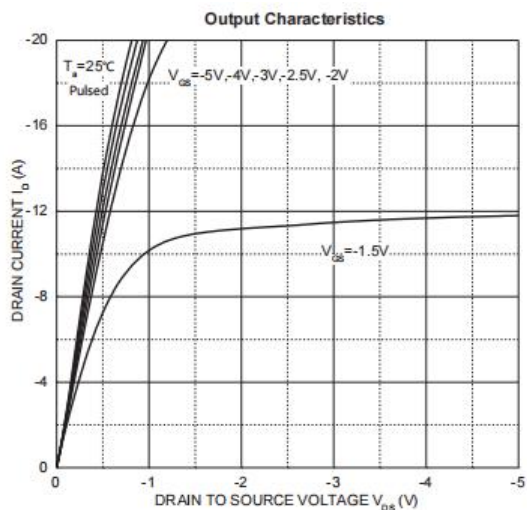
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-12			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±0.1	μA
On Characteristics						
Gate threshold voltage ⁽³⁾	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.65	-1	V
Drain-source on-resistance ⁽³⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -5A		19	28	mΩ
		V _{GS} = -3.7V, I _D = -4.6A		21	32	
		V _{GS} = -2.5V, I _D = -4.3A		27	37	
		V _{GS} = -1.8V, I _D = -1A		35	63	
		V _{GS} = -1.5V, I _D = -0.5A		50	150	
Forward tranconductance ⁽³⁾	g _{FS}	V _{DS} = -5V, I _D = -5A	10	14		S
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} = -6V, V _{GS} = 0V, f = 1MHz		1275		pF
Output Capacitance	C _{oss}			255		
Reverse Transfer Capacitance	C _{rss}			236		
Switching characteristics						
Gate resistance	R _g	f = 1MHz	1.9		19	Ω
Total gate charge	Q _g	V _{DS} = -6V, V _{GS} = -4.5V, I _D = -5A		14	21	nC
Gate-source charge	Q _{gs}			2.3		
Gate-drain charge	Q _{gd}			3.6		
Turn-on delay time	t _{d(on)}	V _{DD} = -6V, V _{GS} = -4.5V, I _D = -4A, R _L = 6Ω, R _G = 1Ω		26		ns
Turn-on rise time	t _r			24		
Turn-off delay time	t _{d(off)}			45		
Turn-off fall time	t _f			20		
Source-Drain Diode characteristics						
Diode forward current	I _S	T _C = 25°C			-6	A
Diode pulsed forward current	I _{SM}				-20	A
Diode Forward voltage ⁽³⁾	V _{DS}	I _S = -4A, V _{GS} = 0V			-1.2	V
Diode reverse recovery time	t _{rr}	I _F = -4A, dI/dt = 100A/μs		24	48	nC
Diode reverse recovery charge	Q _{rr}				8	16

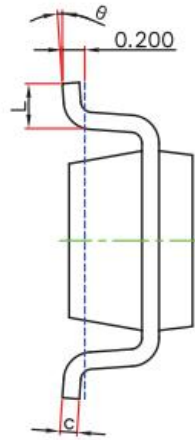
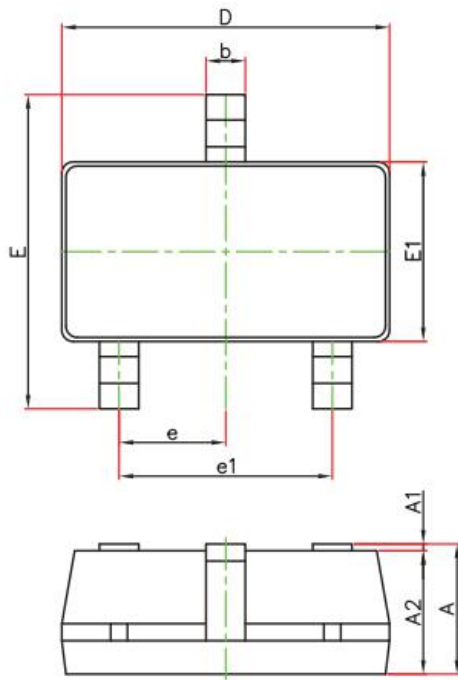
Notes:

- 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 PD is limited by T_J(MAX) = 150°C.
- 5.Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Electrical and Thermal Characteristics



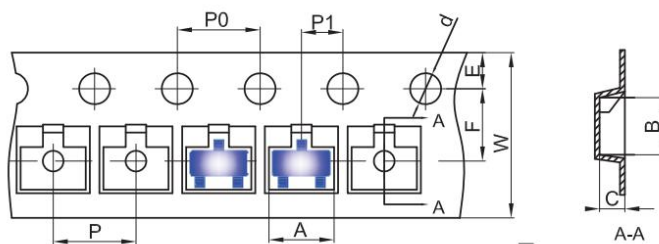
SOT-23-3L Package Information



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
θ	0°	8°	0°	8°

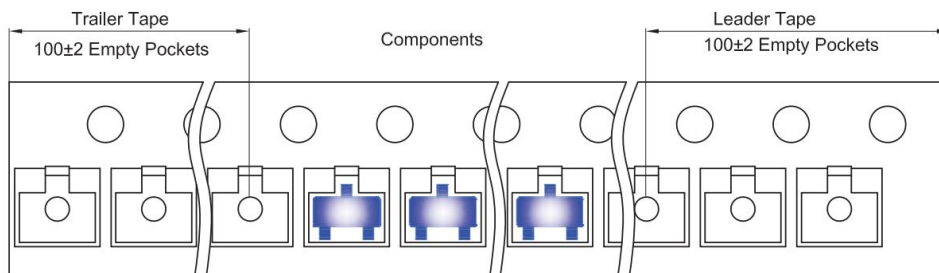
SOT-23-3L Tape and Reel

SOT-23-3L Embossed Carrier Tape

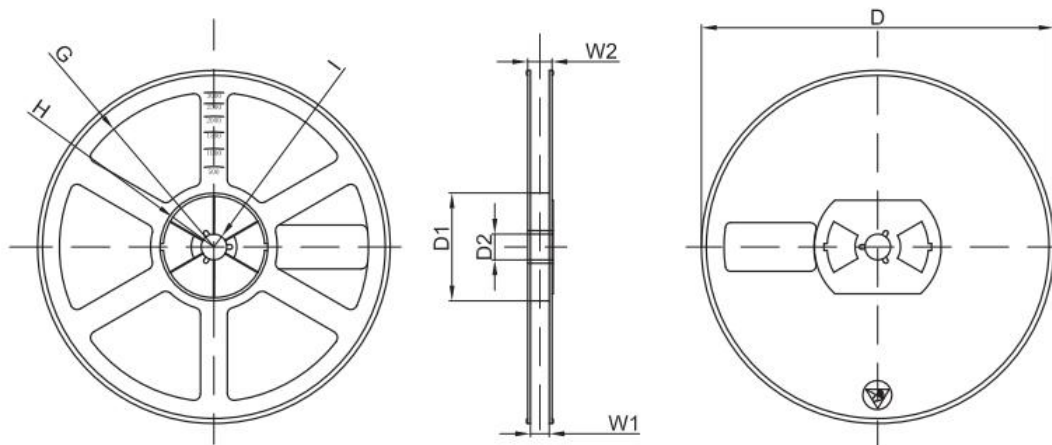


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23-3L	3.18	3.28	1.32	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

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	