

PW502K

50V P-Channel MOSFET

-0.18A -50V; $R_{DS(ON)typ}=2.7\Omega@-5V$, $R_{DS(ON)typ}=2.3\Omega@-10V$.

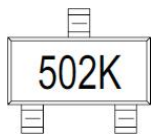
FEATURE

- Energy Efficient
- Low Threshold Voltage
- High-speed Switching
- Miniature Surface Mount Package Saves Board Space

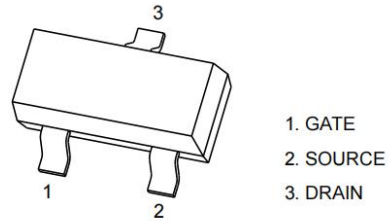
Application

DC-DC converters, load switching, power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones.

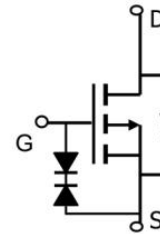
MARKING:



SOT-23



Schematic diagram



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-0.18	A
Plused Drain Current ⁽¹⁾ @ $t_p < 10\mu\text{s}$	I_{DM}	-0.54	A
Power Dissipation	P_D	225	mW
Thermal Resistance from Junction to Ambient ⁽²⁾	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

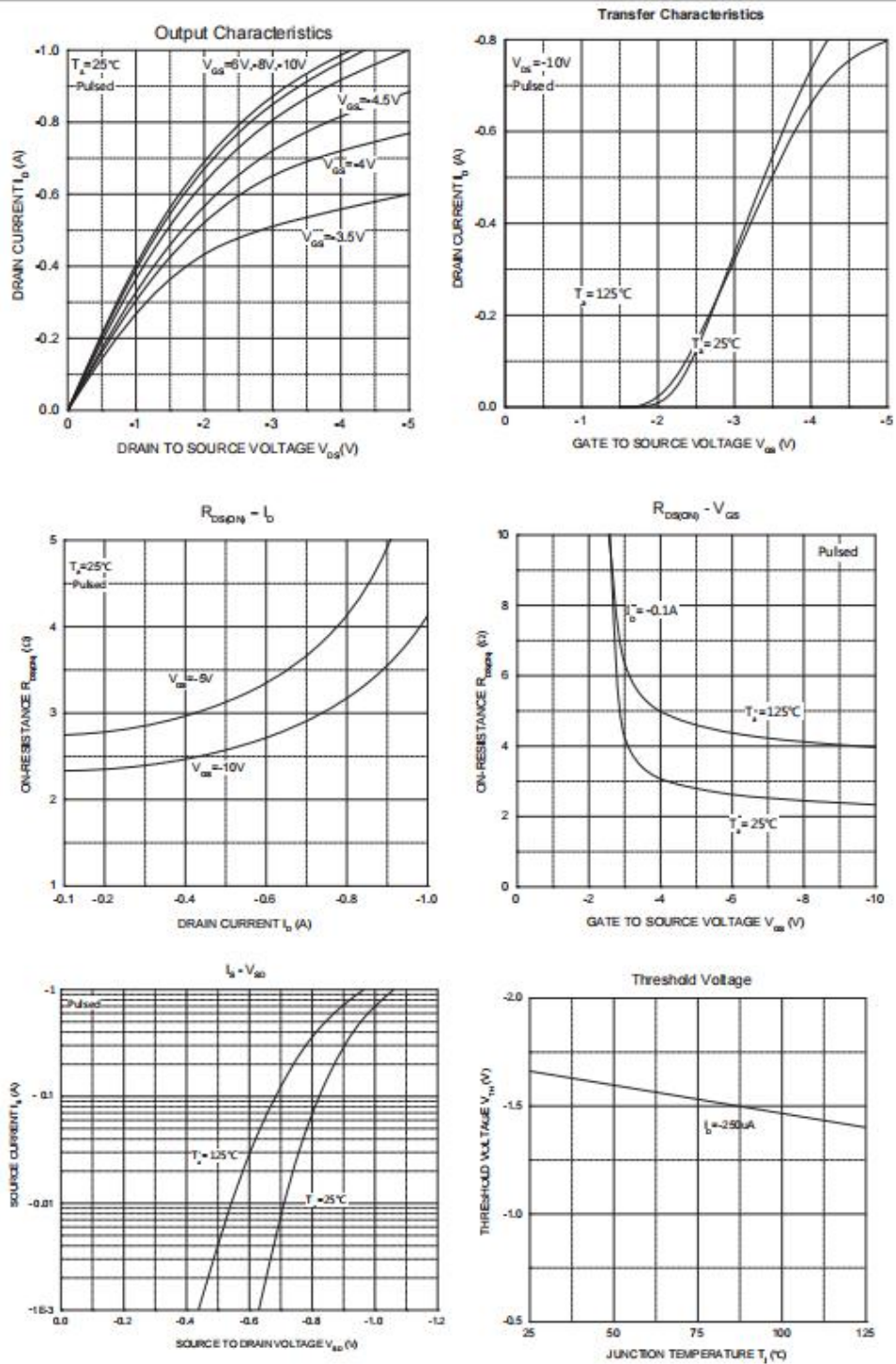
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

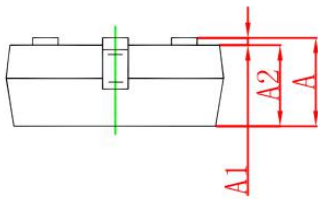
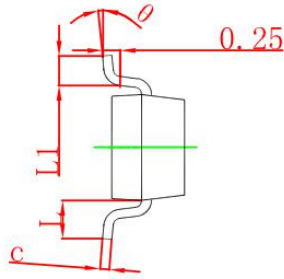
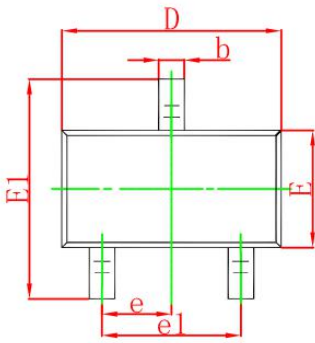
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-50			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -50V, V _{GS} = 0V			-1	μA
		V _{DS} = -25V, V _{GS} = 0V			-0.1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±5	uA
Gate threshold voltage ⁽³⁾	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.9	-1.6	-2	V
Drain-source on-resistance ⁽³⁾	R _{Ds(on)}	V _{GS} = -10V, I _D = -0.1A		2.3	6	Ω
		V _{GS} = -5V, I _D = -0.1A		2.7	7	
		V _{DS} = -25V, I _D = -0.1A	50			
Forward tranconductance ⁽¹⁾	g _{FS}	V _{GS} = 0V, I _D = -250μA	-50			mS
DYNAMIC CHARACTERISTICS⁽⁴⁾						
Input Capacitance	C _{iss}	V _{DS} = -5V, V _{GS} = 0V, f = 1MHz		22		pF
Output Capacitance	C _{oss}			7.5		
Reverse Transfer Capacitance	C _{rss}			4		
SWITCHING CHARACTERISTICS⁽⁴⁾						
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, R _L = 50Ω, I _D = -2.5A		1.85		nS
Turn-on rise time	t _r			0.7		
Turn-off delay time	t _{d(off)}			12		
Turn-off fall time	t _f			6		
SOURCE-DRAIN DIODE CHARACTERISTICS						
Diode forward current	I _S				-0.13	A
Diode pulsed forward current	I _{SM}				-0.52	
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -0.13A			-1.2	V

Notes :

- 1.Repetitive rating : Pulse width limited by junction temperature.
- 2.Surface mounted on FR4 board , t ≤ 10s.
- 3.Pulse Test : Pulse Width ≤ 300 μ s, Duty Cycle ≤ 2%.
- 4.Guaranteed by design, not subject to producing.

Typical Electrical and Thermal Characteristics

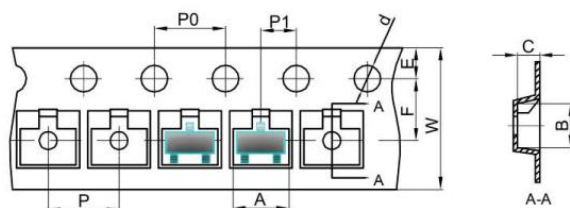




Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

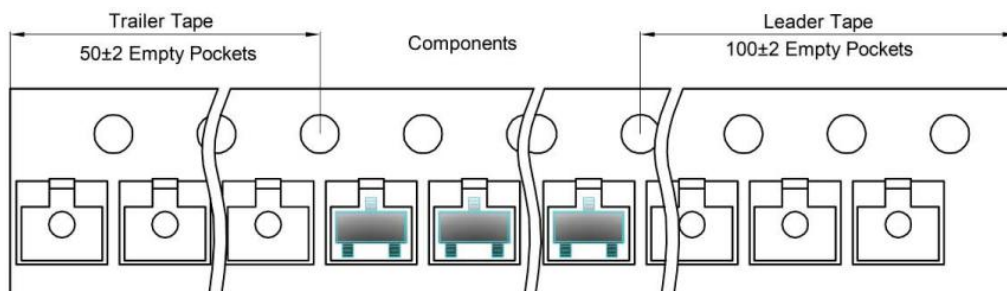
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

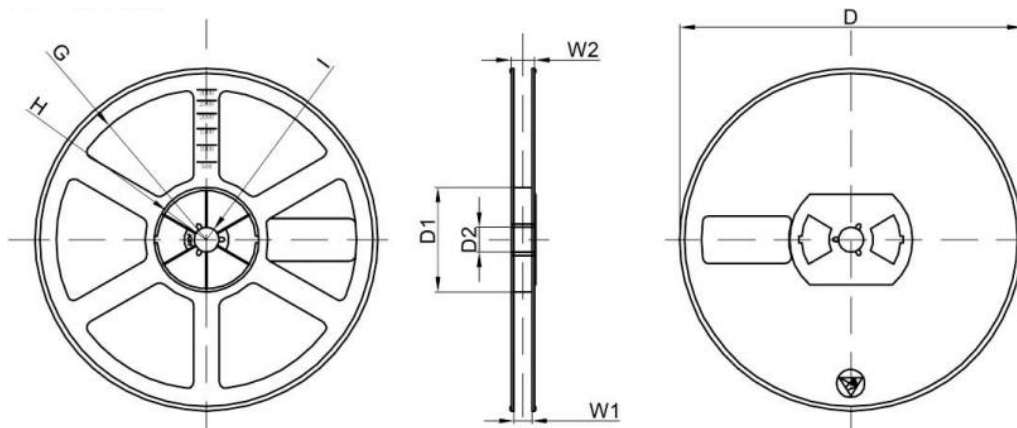


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

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	