

30V N-Channel Enhancement Mode Mosfet

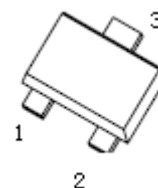
Features:

- Lead Free Product is Acquired
- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

Applications:

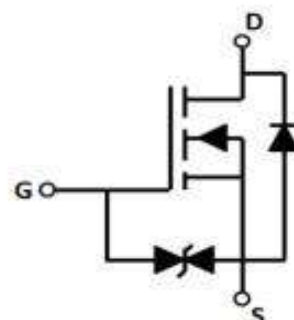
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

SOT-723



1. GATE
2. SOURCE
3. DRAIN

Pin Configuration



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	4Ω @ 1.0 V	0.115A
	6Ω @ 4.5 V	

Package Marking and Ordering Information

Device	Device Marking	Device Package	Reel Size	Tape width	Quantity
KW3541K	P7L	SOT-723	-	-	10,000 units

Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Typical Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (note 1)	I_D	0.115	A
Pulsed Drain Current ($t_p=10 \mu s$)	I_{DM}	1	A
Power Dissipation (note 1)	P_D	150	mW
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	833	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	$^{\circ}\text{C}$

T_a=25 °C unless otherwise specified

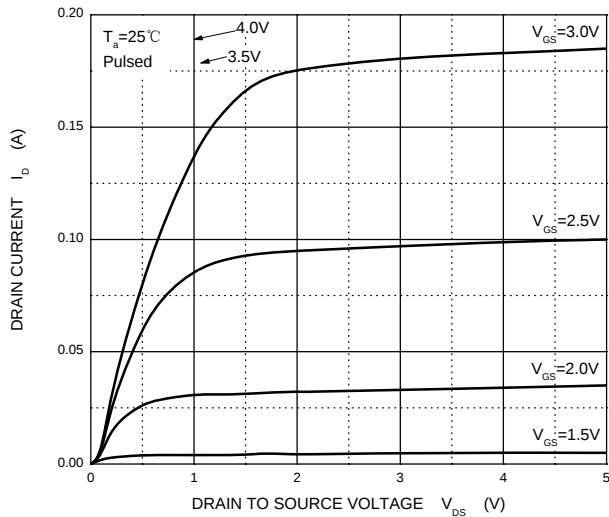
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V,V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±20	μA
Gate threshold voltage (note 2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.8	1.0	1.5	V
Drain-source on-resistance (note 2)	R _{DS (on)}	V _{GS} =10V, I _D =0.5A		2	4	Ω
		V _{GS} =4.5V, I _D =0.2A		3	6	Ω
Forward transconductance (note 2)	g _{FS}	V _{DS} =10V, I _D =0.8A		1.6		S
Diode forward voltage	V _{SD}	I _S =0.15A, V _{GS} = 0V			1.3	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C _{iSS}	V _{DS} =16V,V _{GS} =0V,f =1MHz		50		pF
Output capacitance	C _{oSS}			13	20	pF
Reverse transfer capacitance	C _{rSS}			9	15	pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time (note 3)	t _{d(on)}	V _{GS} =4.5V,V _{DS} =10V, I _D =500mA,R _{GEN} =10Ω		6.7		ns
Turn-on rise time (note 3)	t _r			4.8		ns
Turn-off delay time (note3)	t _{d(off)}			17.3		ns
Turn-off fall time (note 3)	t _f			7.4		ns
Total Gate Charge (note 3)	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =0.25A		750		pC
Gate-Source Charge (note 3)	Q _{gs}			75		pC
Gate-Drain Charge (note 3)	Q _{gd}			225		pC

Notes :

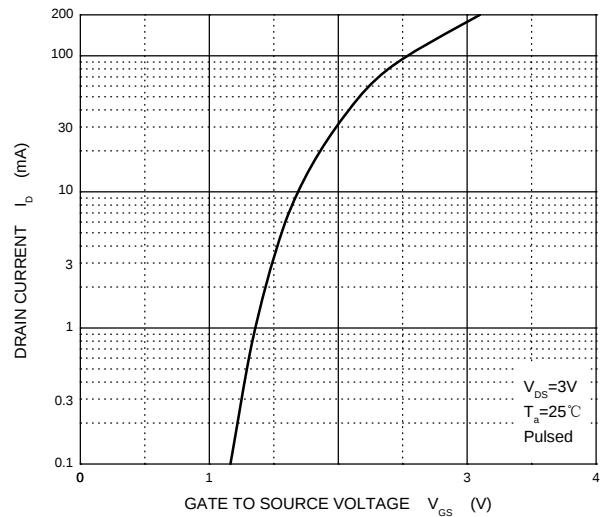
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

Typical Performance Characteristics

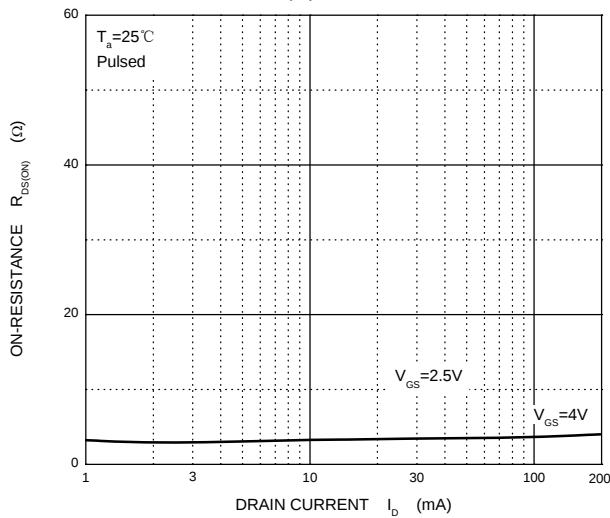
Output Characteristics



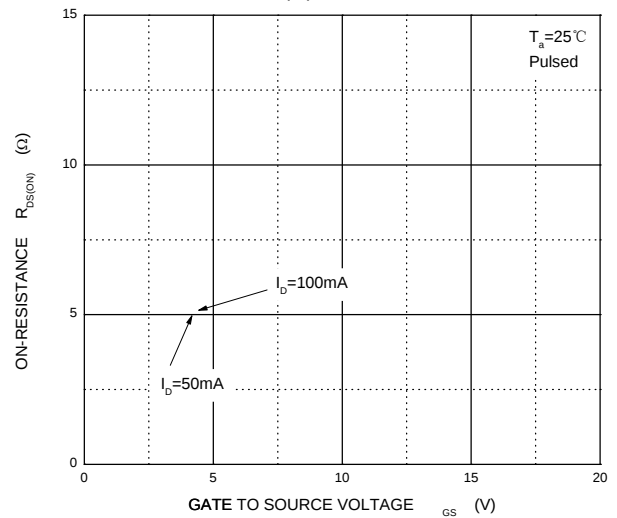
Transfer Characteristics



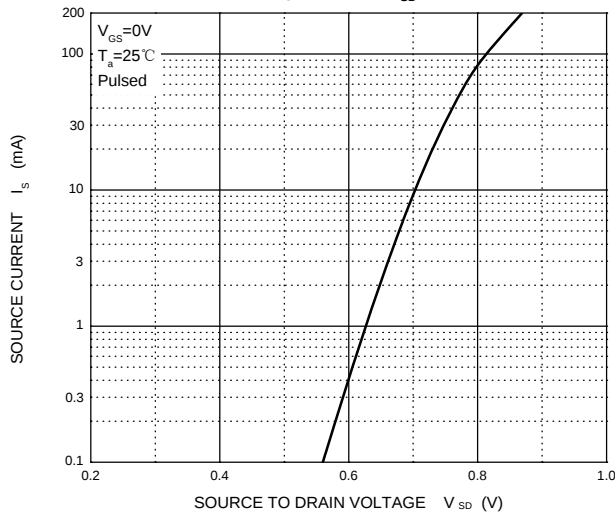
$R_{DS(ON)}$ — I_D



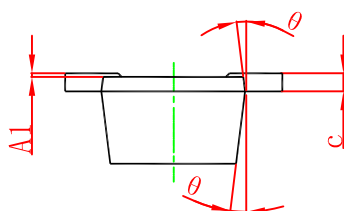
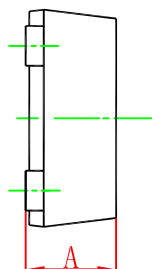
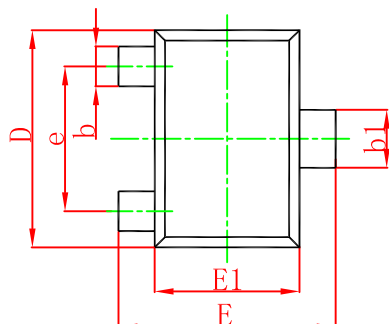
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

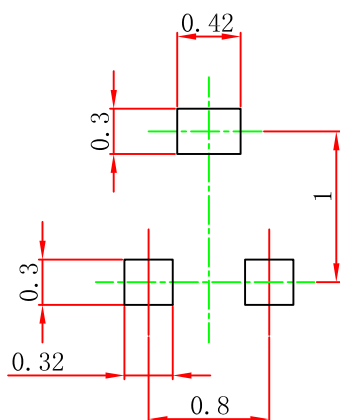


SOT-723 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

SOT-723 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.