WNM3013

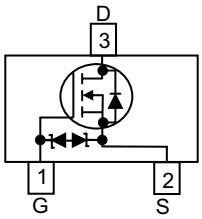
Small Signal N-Channel, 30V, 0.10A, MOSFET

Http://www.willsemi.com

Descriptions

The WNM3013 is the N-Channel enhancement MOS Field Effect Transistor, uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in small signal switch. Standard product WNM3013 is Pb-free.

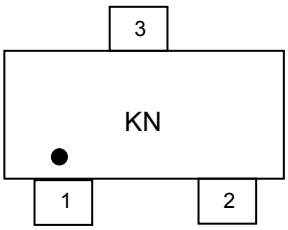
SOT-723



Features

- Trench N-Channel
- Supper high density cell design for extremely low Rds(on)
- Exceptional ON resistance and maximum DC current capability
- Small package design with SOT-723

Pin Configuration



KN = Device Code

Marking

Applications

- Driver: Relays, Solenoids, Lamps, Hammers
- Power supply converters circuit
- Load/Power Switching for potable device

Order Information

Device	Package	Shipping
WNM3013-3/TR	SOT-723	8000/Tape&Reel

Absolute Maximum ratings

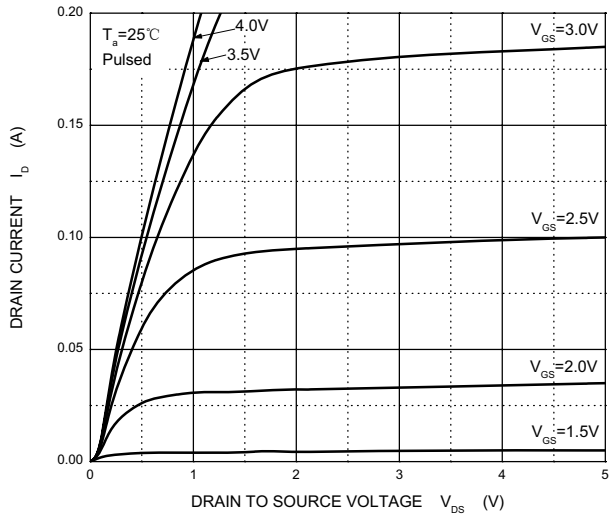
Symbol	Parameter	Ratings	Unit
V_{DSS}	Drain-to-Source Voltage	30	V
V_{GSS}	Gate-to-Source Voltage	±20	V
I_D	Drain Current – Continue	0.10	A
P_D	Power Dissipation	0.15	W
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance	833	°C/W
T_J	Operation junction temperature range	150	°C
T_{SG}	Storage temperature range	-55~150	°C

Electronics Characteristics (T_A=25°C unless otherwise noted)

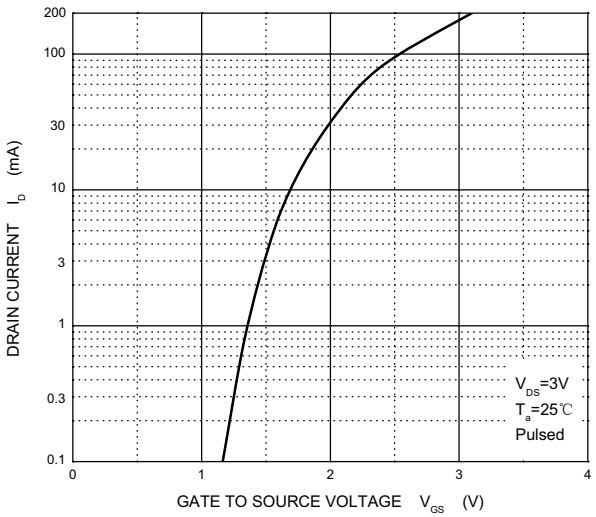
Symbol	Parameter	Test Condition	Min	Typ.	Max	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=10uA	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	uA
I_{GSS}	Gate –Source leakage current	V_{DS}=0V, V_{GS}=±20V			±1	uA
ON Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= 3V, I_D=100uA	0.8		1.5	V
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=4V, I_D=10mA		5	8	Ω
		V_{GS}=2.5V, I_D=1mA		7	13	Ω
g_{FS}	Forward Transconductance	V_{DS} = 3V, I_D = 10mA	20			mS
Dynamic Characteristics						
Ciss	Input Capacitance	V_{DS}=5V, V_{GS}=0V, F=1MHz		13		pF
Coss	Output Capacitance			9		
Crss	Reverse Transfer Capacitance			4		
Switching Characteristics						
td(on)	Turn-On Delay Time	V_{DD}=5V, V_{GS}=5V, I_D=10mA, R_L=500Ω, R_G=10Ω		15		ns
tr	Rise Time			35		
td(off)	Turn-Off Delay Time			80		
tf	Fall Time			80		

Typical Performance Graph

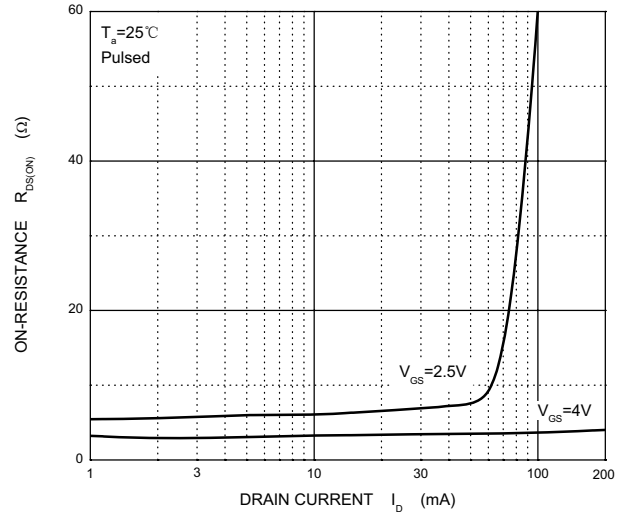
Output Characteristics



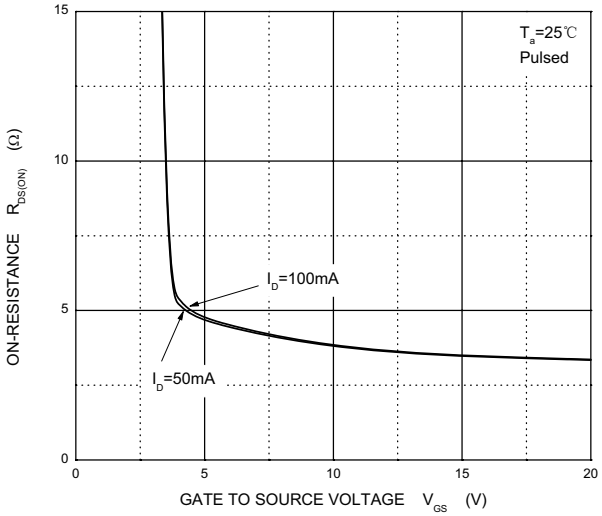
Transfer Characteristics



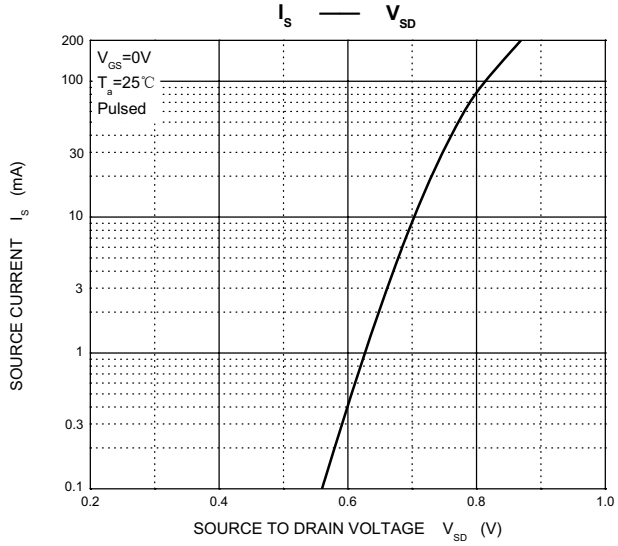
$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}

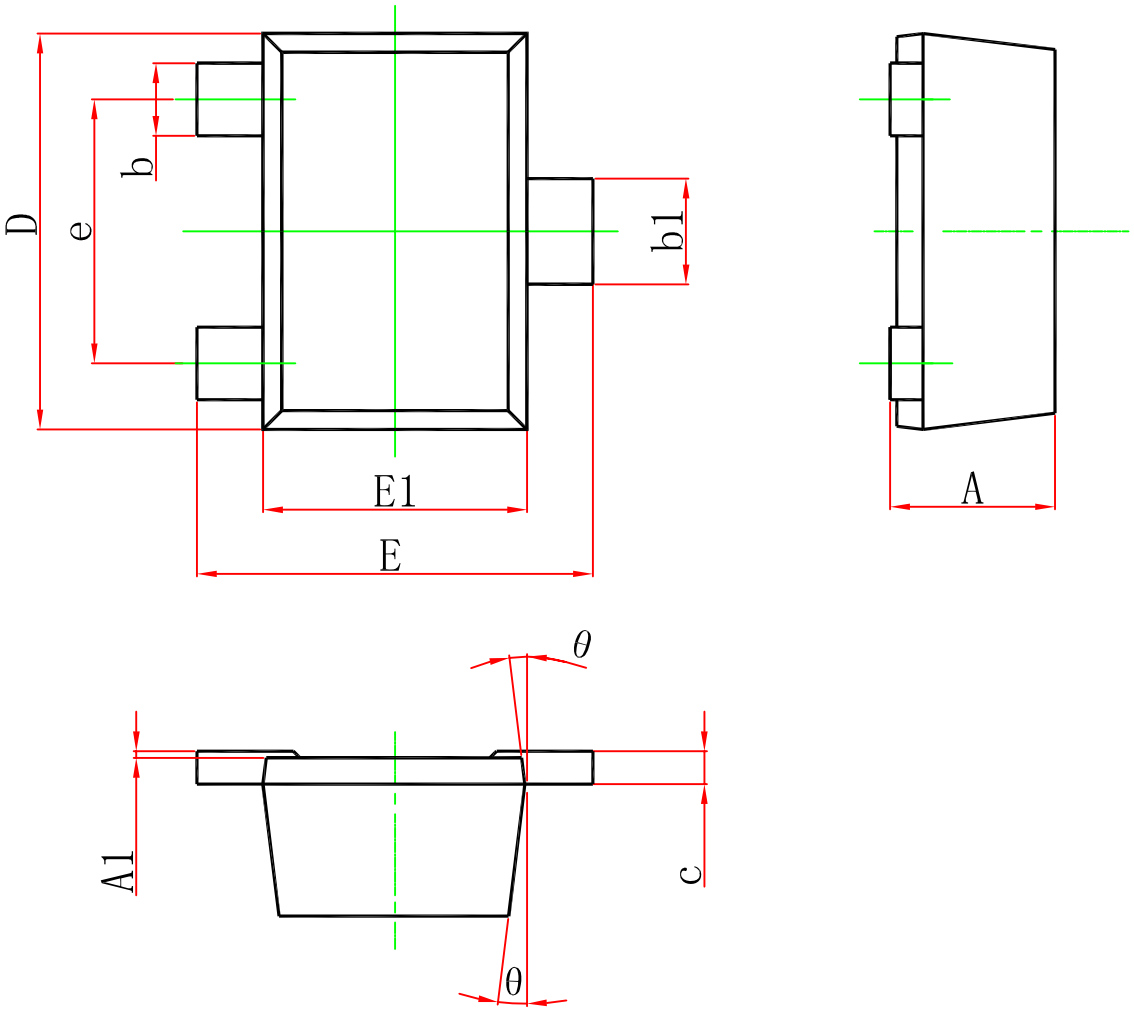


I_S —— V_{SD}



Package Outline Dimension

SOT-723



Symbol	Dimension in Millimeters	
	Min.	Max.
A		0.500
A1	0.000	0.050
b	0.170	0.270
b1	0.270	0.370
c		0.150
D	1.150	1.250
E	1.150	1.250
E1	0.750	0.850
e	0.800 Typ.	
θ	7° Typ.	