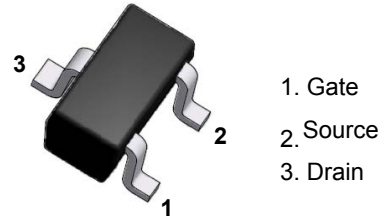


N-Channel Mosfet

FEATURES

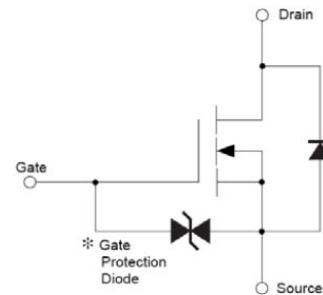
- Low On-resistance
- Fast Switching Speed
- Low Voltage Drive Makes This Device Ideal for Portable Equipment
- Easily Designed Drive Circuits
- Easy to Parallel
- RoHS Compliant & Green EMC
- Matte Tin(Sn) Lead Finish
- Weight: approx. 0.002g

SOT-523



1. Gate
2. Source
3. Drain

CIRCUIT DIAGRAM



MARKING: KN

MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Continuous Gate-Source Voltage	±20V	V
I_D	Continuous Drain Current	100	mA
P_D	Power Dissipation	150	mW
R_{θJA}	Thermal Resistance from Junction to Ambient	833	°C /W
T_{STG}	Storage Temperature Range	-55 to +150	°C
T_J	Operating Junction Temperature	+150	°C

These ratings are limiting values above which the serviceability of the device may be impaired.

ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =10uA	30			V
I_{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} =±20V			±1	uA
I_{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	μA
On Characteristics						
V_{th}(GS)	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			8	Ω
		V _{GS} =2.5V, I _D =1mA			13	Ω
g_{fs}	Forward Trans Conductance	V _{DS} =3V, I _D =10mA	20			ms
V_{SD}	Drain-Source Diode Forward Voltage	I _S =115mA, V _{GS} =0V			1.2	V
Dynamic Characteristics						
C_{iss}	Input Capacitance	V _{DS} = 5V V _{GS} = 0V f = 1.0MHz		13		pF
C_{oss}	Output Capacitance			9		pF
C_{rss}	Reverse transfer Capacitance			4		pF
Switching Characteristics						
t_{D(on)}	Turn-on Time	V _{DD} =5V, R _L =500Ω, I _D =10mA, V _{GS} =5V, R _G = 10Ω		15		nS
t_{D(off)}	Turn-off Time			80		nS

TYPICAL CHARACTERISTICS

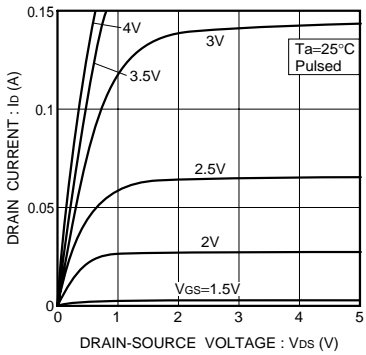


Fig.1 Typical output characteristics

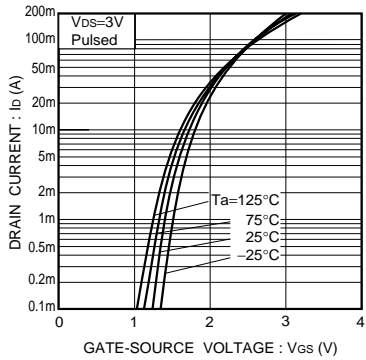


Fig.2 Typical transfer characteristics

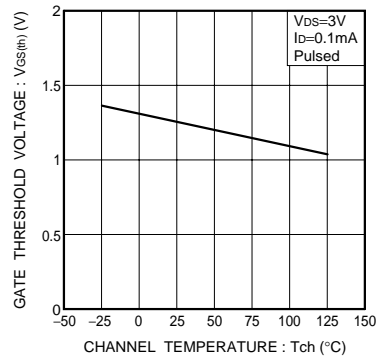


Fig.3 Gate threshold voltage vs. channel temperature

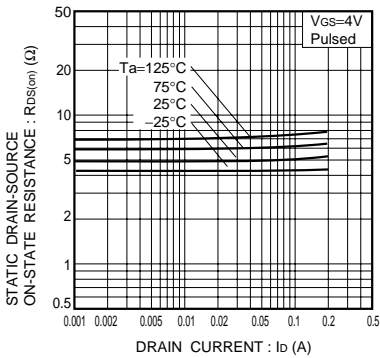


Fig.4 Static drain-source on-state resistance vs. drain current (I)

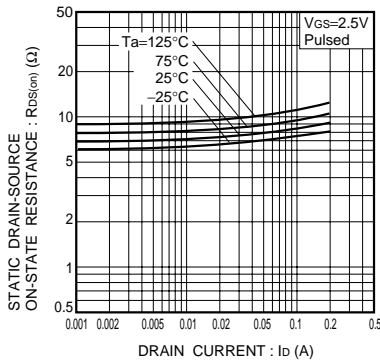


Fig.5 Static drain-source on-state resistance vs. drain current (II)

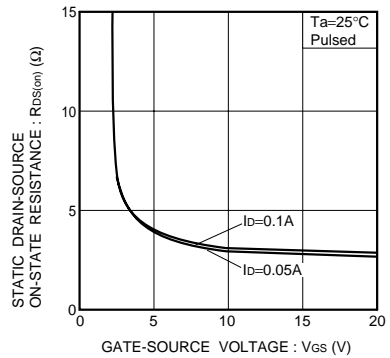


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

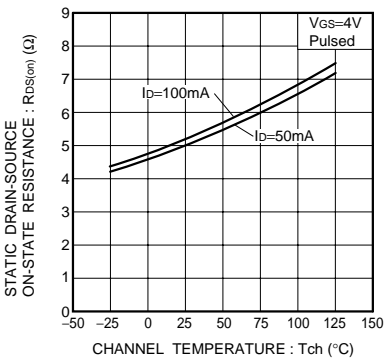


Fig.7 Static drain-source on-state resistance vs. channel temperature

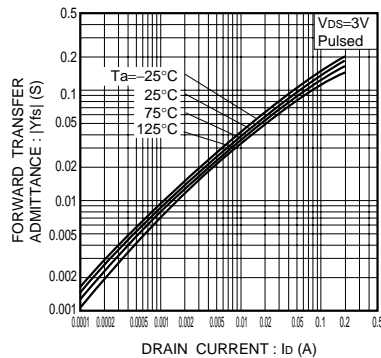


Fig.8 Forward transfer admittance vs. drain current

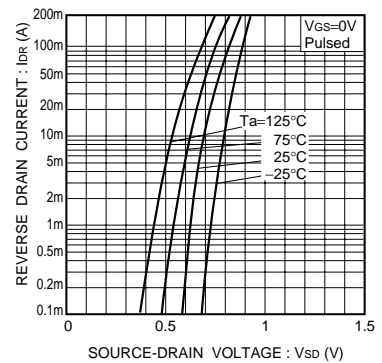


Fig.9 Reverse drain current vs. source-drain voltage (I)

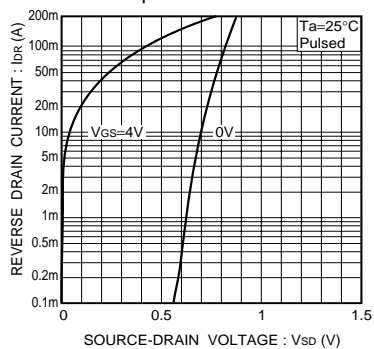


Fig.10 Reverse drain current vs. source-drain voltage (II)

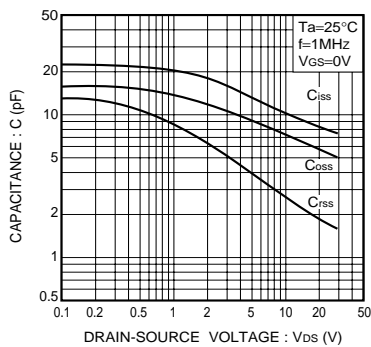


Fig.11 Typical capacitance vs. drain-source voltage

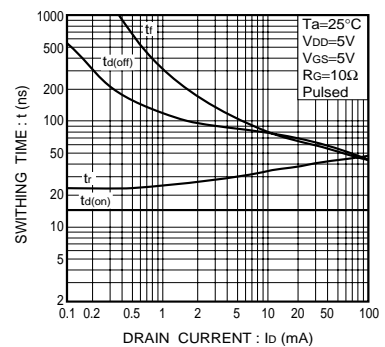
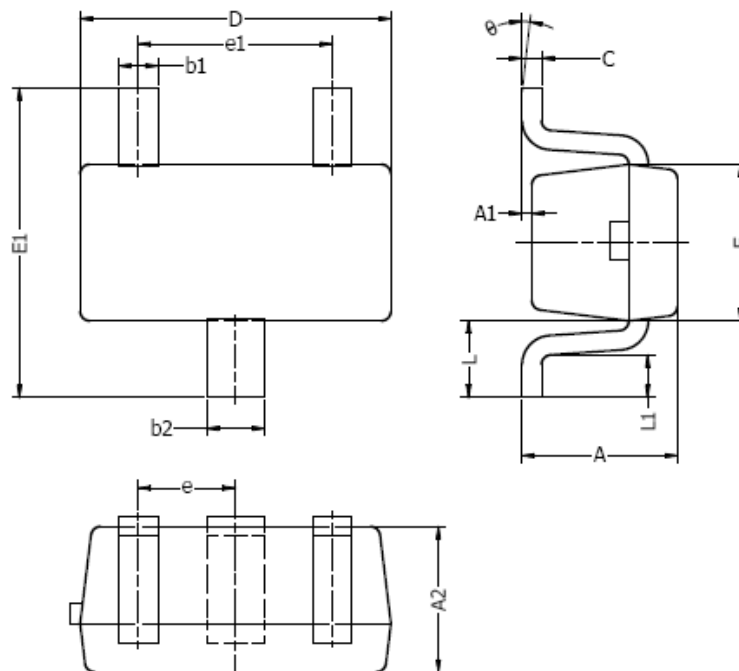


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

SOT-523 PACKAGE OUTLINE DRAWING



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°