

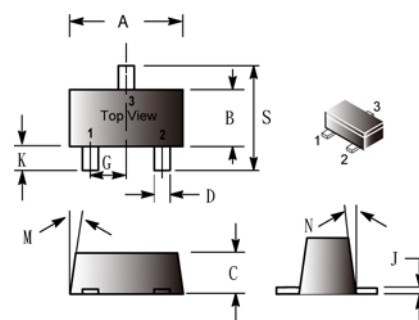
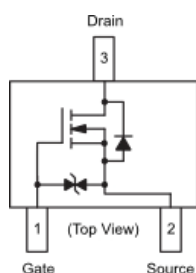
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

SOT-523

FEATURES

- Low on-resistance.
- Fast switching speed.
- Low voltage drive makes this device ideal for portable equipment.
- Easily designed drive circuits.
- Easy to parallel.

EQUIVALENT CIRCUIT



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.50	1.70	K	0.30	0.50
B	0.75	0.95	M	---	10 ⁻¹
C	0.60	0.80	N	---	10 ⁻¹
D	0.23	0.33	S	1.50	1.70
G	0.50BSC				
J	0.10	0.20			

MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	0.1	A
Total Power Dissipation	P _D	0.15	W
Operating Junction Temperature Range	T _J	150	°C
Operating Storage Temperature Range	T _{STG}	-55~150	°C
Thermal Resistance, Junction to Ambient	R _{θJA}	833	°C / W

DEVICE MARKING

KN

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

CHARACTERISTICS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	$V_{GS} = 0V, I_D = 10\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	-	-	± 1	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$
Gate Threshold Voltage	$V_{GS(th)}$	0.8	-	1.5	V	$V_{DS} = 3V, I_D = 100\mu A$
Static Drain-Source On Resistance	$R_{DS(ON)}$	-	-	8	Ω	$V_{GS} = 4V, I_D = 10mA$
		-	-	13		$V_{GS} = 2.5V, I_D = 1mA$
Forward transfer admittance	g_{fs}	20	-	-	mS	$V_{DS} = 3V, I_D = 10mA$
Dynamic Characteristics						
Input Capacitance	C_{iss}	-	13	-	pF	$V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$
Output Capacitance	C_{oss}	-	9	-		
Reverse Transfer Capacitance	C_{rss}	-	4	-		
Switching Characteristics						
Turn-On Delay Time	$T_{d(ON)}$	-	15	-	nS	$V_{GS} = 5V, V_{DD} = 5V, I_D = 10mA,$ $R_G = 10\Omega, R_L = 500\Omega$
Rise Time	T_r	-	35	-		
Turn-Off Delay Time	$T_{d(OFF)}$	-	80	-		
Fall Time	T_f	-	80	-		

CHARACTERISTIC CURVE

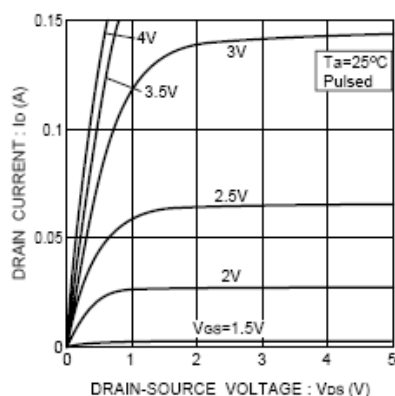


Fig.1 Typical output characteristics

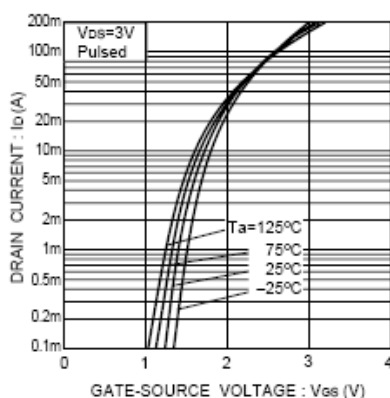


Fig.2 Typical transfer characteristics

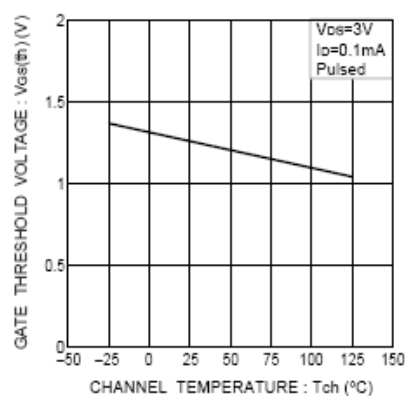


Fig.3 Gate threshold voltage vs. channel temperature

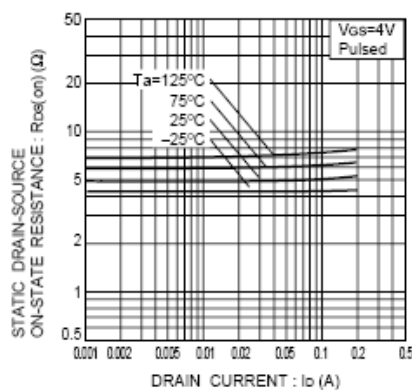


Fig.4 Static drain-source on-state resistance vs. drain current (I)

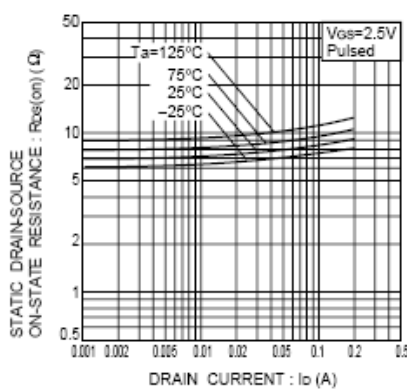


Fig.5 Static drain-source on-state resistance vs. drain current (II)

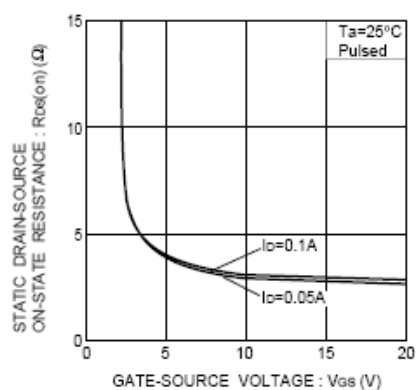


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

CHARACTERISTIC CURVE

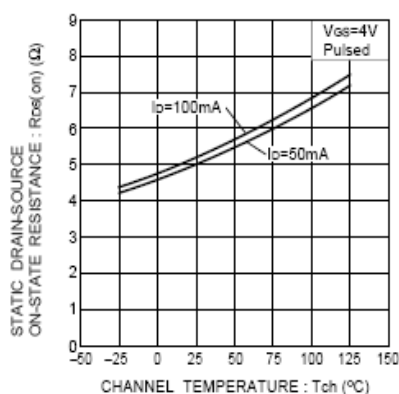


Fig.7 Static drain-source on-state resistance vs. channel temperature

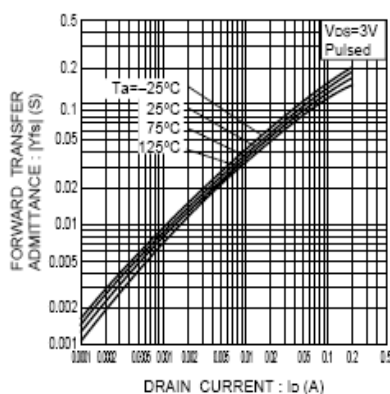


Fig.8 Forward transfer admittance vs. drain current

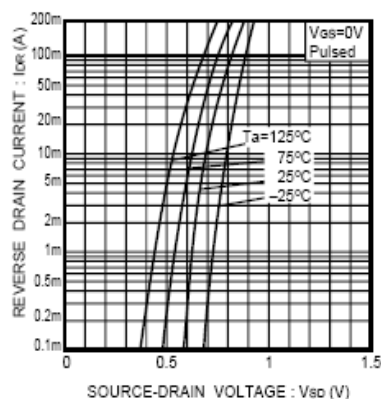


Fig.9 Reverse drain current vs. source-drain voltage (I)

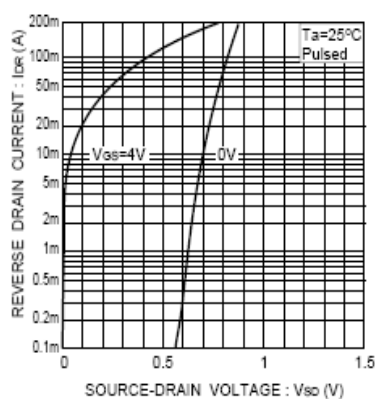


Fig.10 Reverse drain current vs. source-drain voltage (II)

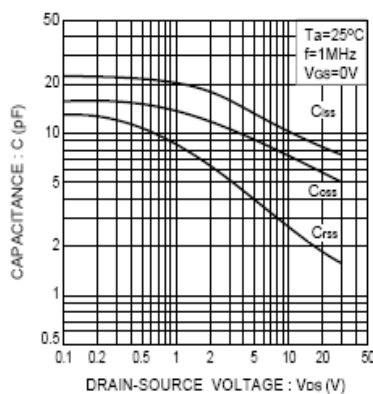


Fig.11 Typical capacitance vs. drain-source voltage

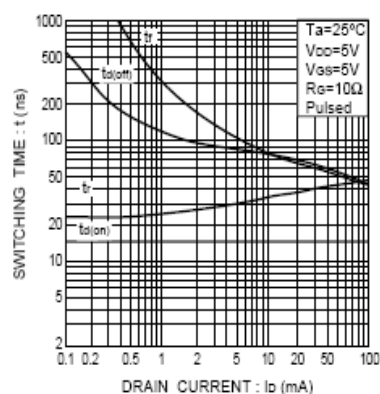


Fig.12 Switching characteristics
(See Figures 13 and 14 for the measurement circuit and resultant waveforms)