

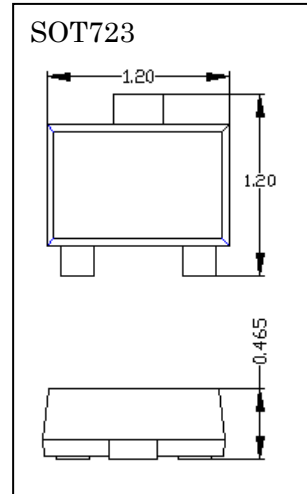
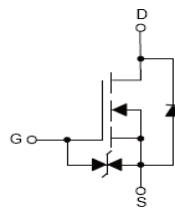
DATA SHEET

2N7002KM

- ◇ High Density Cell Design for Low RDS(ON)
- ◇ Voltage Controlled Small Signal Switch
- ◇ Small Outline Surface Mount Package
- ◇ RoHS compliant / Green EMC

Device Marking Code	
2N7002KM	RK

Circuit Diagram



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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current-Continuous	0.34	A
P_D	Power Dissipation	0.15	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	833	$^{\circ}\text{C}/\text{W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS @ 25° C Unless Otherwise Specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60			V
$V_{GS(th)}$	Gate-Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.4	2.5	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=48V, V_{GS}=0V$			1.0	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 10	μA
		$V_{GS}=\pm 10V, V_{DS}=0V$			± 200	nA
		$V_{GS}=\pm 5V, V_{DS}=0V$			± 100	nA
$R_{DS(on)}$	Drain-Source	$V_{GS}=10V, I_D=500mA$		1.3	4.0	Ω



	On-Resistance	$V_{GS}=4.5V, I_D=200mA$		1.4	4.5	
Q_r	Recovered Charge	$V_{GS}=0V, I_S=300mA, V_R=25V$ $di/dt=-100A/\mu s$		30		nC
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V, f=1MHz$			40	pF
C_{oss}	Output Capacitance				30	
C_{rss}	Reverse Transfer Capacitance				10	
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=25V, V_{GS}=10V, R_L=250\Omega,$ $R_{GS}=50K, R_{GEN}=25\Omega$			10	nS
$t_{d(off)}$	Turn-off Delay Time				15	
t_{rr}	Reverse Recovery Time	$V_{GS}=0V, I_S=300mA, V_R=25V,$ $di/dt=-100A/\mu s$		30		
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=200mA$		0.97	1.5	V

Curve Characteristics

Fig. 1 - Output Characteristics

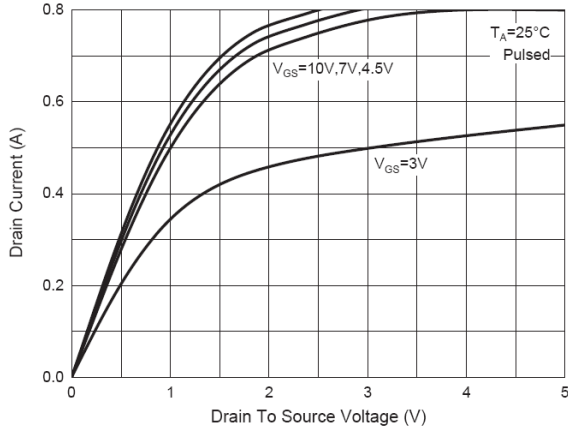


Fig. 2 - Transfer Characteristics

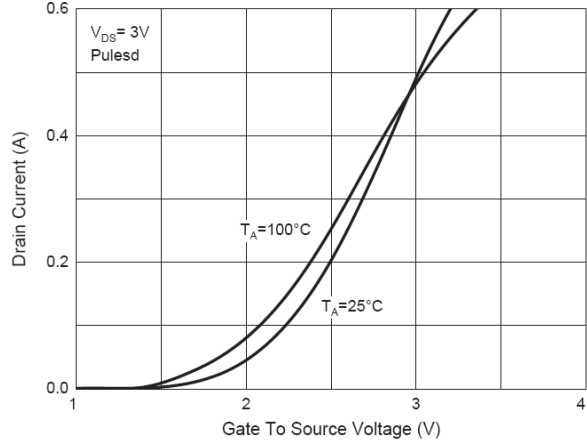


Fig. 3 - $R_{DS(ON)}-I_D$

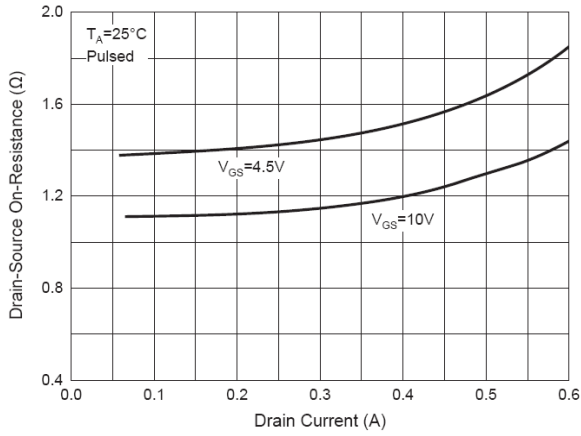


Fig. 4 - $R_{DS(ON)}-V_{GS}$

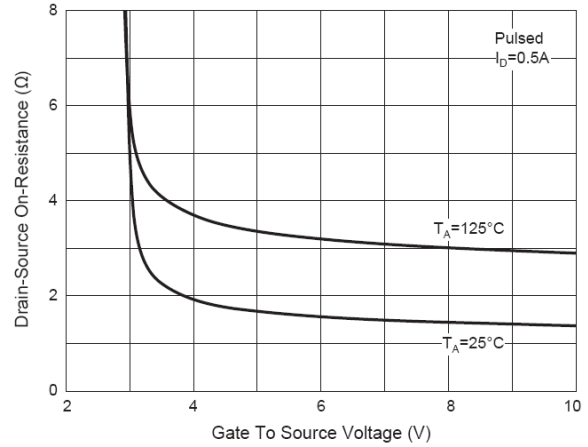


Fig. 5 - I_S-V_{SD}

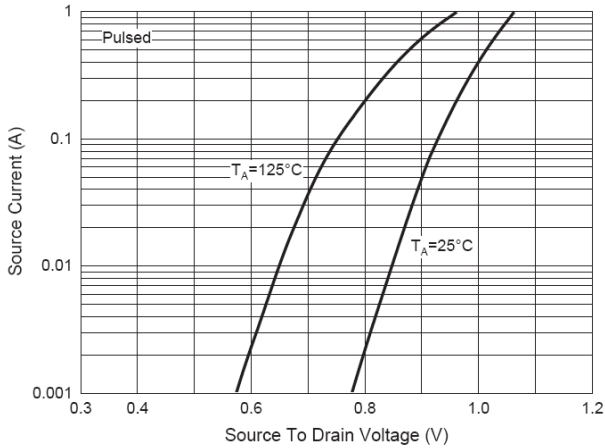
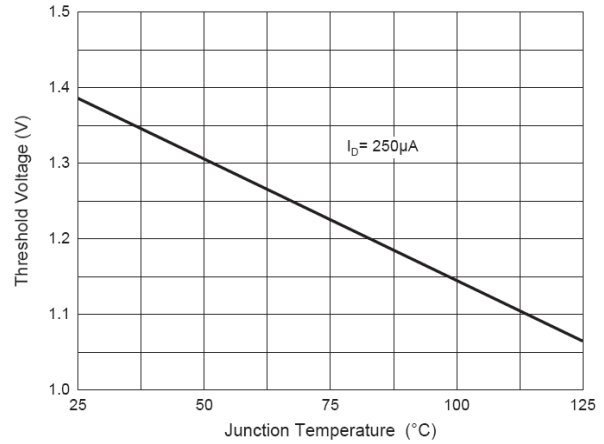


Fig. 6 - Threshold Voltage



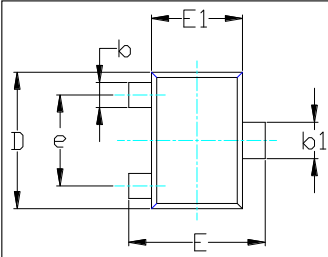
ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
2N7002KM	SOT723	Tape & Reel 8000pcs /7" Reel	8mm	4mm	Conductive	

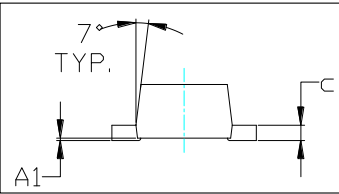
PACKAGE DIMENSIONS

Package outline : SOT723

Top view

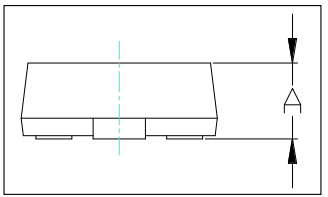


Side view

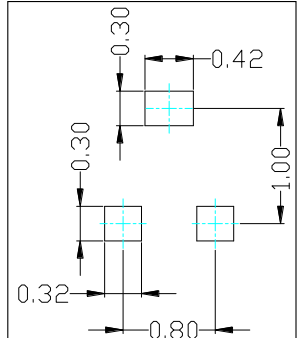


SYMBOL	DIMENSIONS IN MILLIMETER	
	MIN	MAX
A	0.430	0.500
A1	0.000	0.050
b	0.170	0.270
b1	0.270	0.370
c	0.080	0.150
D	1.150	1.250
E	1.150	1.250
E1	0.750	0.850
e	0.800 TYP.	
θ	0°	7°

Front view



Soldering Pattern



Notice:

1. Lead plating: Pb free solder
2. Lead thickness includes solder plating
3. Lead frame: CAC-5
4. Other Tolerance: ±0.05
5. Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions
6. Unit: mm

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