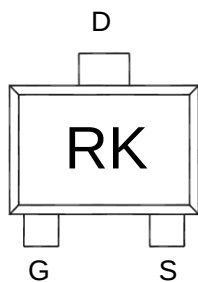


Features

- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance and Fast Switching Speed
- Low Input / Output Leakage
- ESD protected

Application

- Battery operated systems
- Solid-state relays



RK: Device code

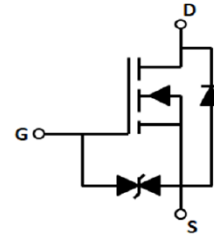
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
60V	1.6Ω@10V	0.115A
	2.1Ω@5V	



SOT-723 top view



Schematic diagram



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			
V_{DS}	Drain-Source Breakdown Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 155	°C
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}C$ 0.115	A

Mounted on Large Heat Sink

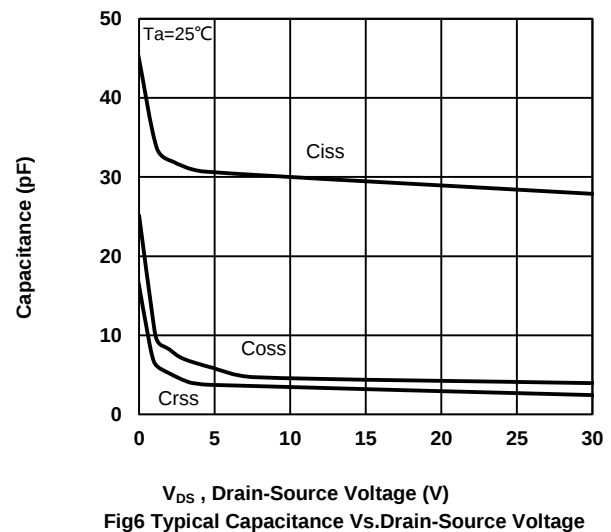
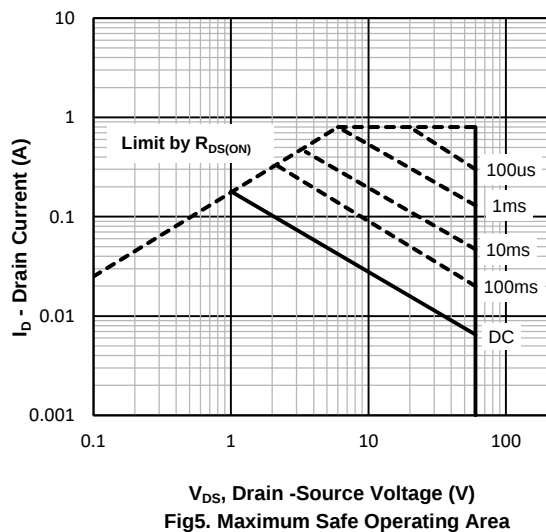
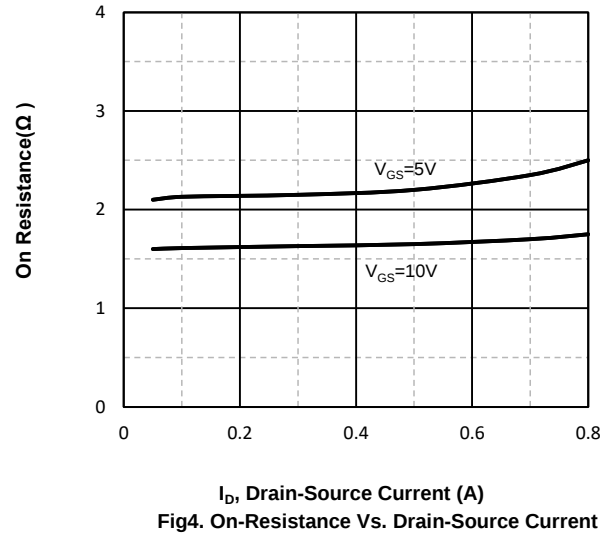
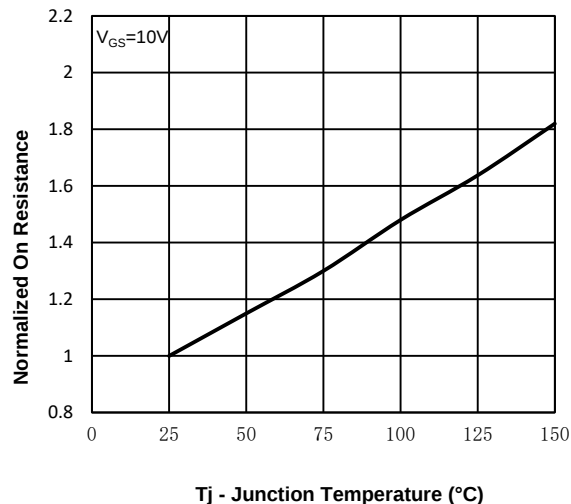
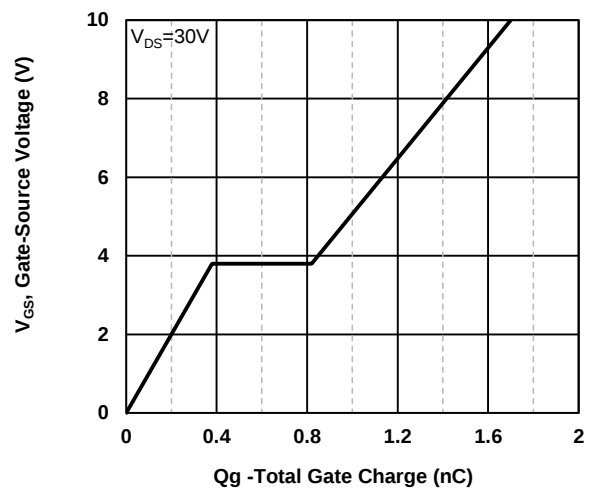
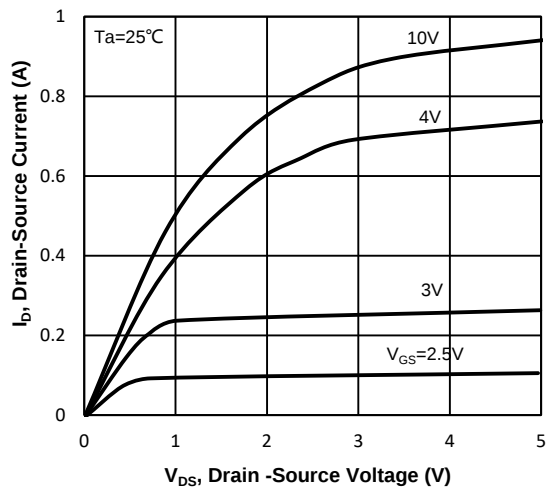
I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$ 0.8	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$ 0.115	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$ 0.15	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	833	°C/W
E_{SD}	Gate-Source ESD Rating (HBM, Method 3015)	2000	V

Ordering Information (Example)

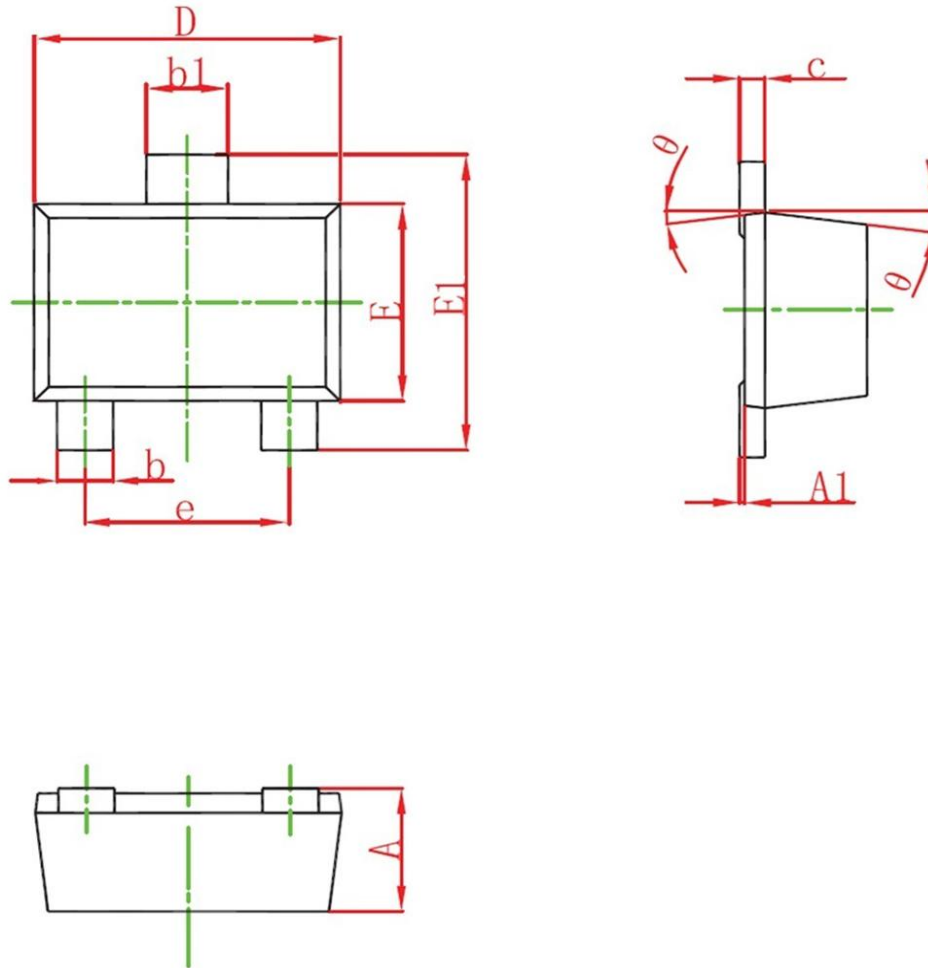
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2N7002KM	SOT-723	RK	8,000	120,000	480,000	7" reel

Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±20	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.8	1.6	3.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =0.3A	--	1.6	7.5	Ω
		V _{GS} =5V, I _D =0.2A	--	2.1	7.5	Ω
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	--	27	--	pF
C _{OSS}	Output Capacitance		--	6	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	4	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =30V, I _D =0.115A, V _{GS} =10V	--	1.22	2.4	nC
Q _{gs}	Gate-Source Charge		--	0.5	--	nC
Q _{gd}	Gate-Drain Charge		--	0.18	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =0.115A, V _{GS} =10V, R _G =50Ω	--	7	--	nS
t _r	Turn-on Rise Time		--	19	--	nS
t _{d(off)}	Turn-Off Delay Time		--	20	--	nS
t _f	Turn-off fall Time		--	84	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=0.115A	--	--	1.2	V

Typical Operating Characteristics



SOT-723 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.320	0.400	0.012	0.016
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.006	0.010
b1	0.270	0.370	0.010	0.014
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.046	0.050
E	0.750	0.850	0.030	0.034
E1	1.150	1.250	0.046	0.050
e	0.800TYP		0.020TYP	
θ	7°REF		7°REF	