DESCRIPTION

The AM2N7002K-Q is available in SOT-23 Package.

AEC-Q101 Certificated

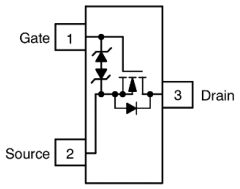
APPLICATION

- Portable Applications, DC-DC converters, Switches…etc.
- ESD Protected:1000V.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	AM2N7002KE3VR-Q
Note	R: Tape & Reel V: Halogen free Package Q: AEC-Q101 certificated	
AiT provides all RoHS products		

PIN DESCRIPTION



Pin#	Symbol	Function
1,	G	Gate
2	S	Source
3	D	Drain

ABSOLUTE MAXIMUM RATINGS

V_{DSS}, Drain-Source Voltage		60V
V_{DGR}, Drain–Gate Voltage (R_{GS} = 1.0 MΩ)		60V
I_D, Continuous Drain Continuous (1)	T_C=25℃	±115mA
	T_C=100℃	±75mA
I_{DM} (2), Pulsed Drain Current		±800mA
V_{GS}, Gate-Source Voltage Continuous		±20V
V_{GSM}, Non–Repetitive Continuous (t_p≤ 50μs)		±40V
P_D (3), Total Device Dissipation FR–5 Board	T_A=25℃	225mW
	Derate Above 25°C	1.8mW/℃
$R_{\theta JA}$, Thermal Resistance, Junction to Ambient		556℃/W
P_D (4), Total Device Dissipation	T_A=25℃	300mW
	Derate Above 25°C	2.4mW/℃
$R_{\theta JA}$, Thermal Resistance, Junction to Ambient		417℃/W
T_J, Junction Temperature		-55℃~+150℃
T_{STG}, Storage Temperature		-55℃~+150℃

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

(1) The Power Dissipation of the package may result in a lower continuous drain current.

(2) Pulse width≦300us, duty cycle≦2%

(3) FR–5 = 1.0 x 0.75 x 0.062 in.

(4) Alumina = 0.4 x 0.3 x 0.025 in 99.5% alumina.

ELECTRICAL CHARACTERISTICS

T_A=25℃,unless otherwise noted.

Parameter	Symbol	Conditions		Min	Typ.	Max	Unit
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0, I_D=10μA		60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0, V_{DS}=60V	T_J=25°C	-	-	1	μA
			T_J=125°C	-	-	500	
Gate-Body Leakage Current, Forward	I_{GSSF}	V_{GS} =20V				1	μA
Gate-Body Leakage Current, Reverse	I_{GSSR}	V_{GS} = -20V,		-	-	-1	μA
ON CHARACTERISTICS							
Gate Threshold Voltage	$V_{GS\ (th)}$	V_{DS}=V_{GS}, I_D=250μA		1.00	1.60-	2.00	V
On–State Drain Current	$I_{D\ (on)}$	V_{DS}≥ 2.0$V_{DS\ (on)}$, V_{GS} = 10V		500	-	-	mA
Static Drain–Source On–State Voltage	$V_{DS\ (on)}$	V_{GS}=10V, I_D=500mA		-	-	3.750	V
		V_{GS}=5V, I_D=50mA		-	-	0.375	
Static Drain–Source On–State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=500mA	T_C=25°C	-	1.40	7.50	Ω
			T_C=125°C	-	-	13.50	
		V_{GS}=5V, I_D=50mA	T_C=25°C	-	1.80	7.50	
			T_C=125°C	-	-	13.50	
Forward Transconductance	g_{FS}	V_{DS}≥ 2.0$V_{DS\ (on)}$, I_D=200mA		80	-	-	mS
Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%							
DYNAMIC CHARACTERISTICS							
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz		-	17	50	pF
Output Capacitance	C_{oss}			-	10	25	
Reverse Transfer Capacitance	C_{rss}			-	2.50	5.00	
SWITCHING CHARACTERISTICS							
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=25V, I_D=500mA		-	7	20	ns
Turn-Off Delay Time	$t_{d(off)}$	R_G=25Ω, R_L=50Ω, V_{gen}=10V		-	11	40	
Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%							
BODY–DRAIN DIODE RATINGS							
Diode Forward On–Voltage	V_{SD}	I_S=115mA, V_{GS}=0V		-	-	-1.5	V
Source Current Continuous (Body Diode)	I_S	-		-	-	-115	mA
Source Current Pulsed	I_{SM}	-		-	-	-800	mA

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Ohmic Region

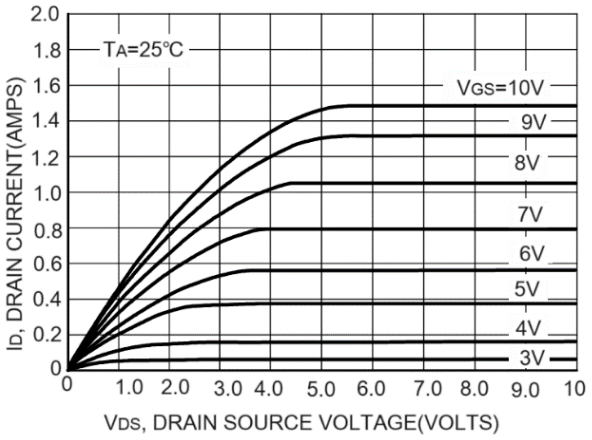


Fig 2. Transfer Characteristics

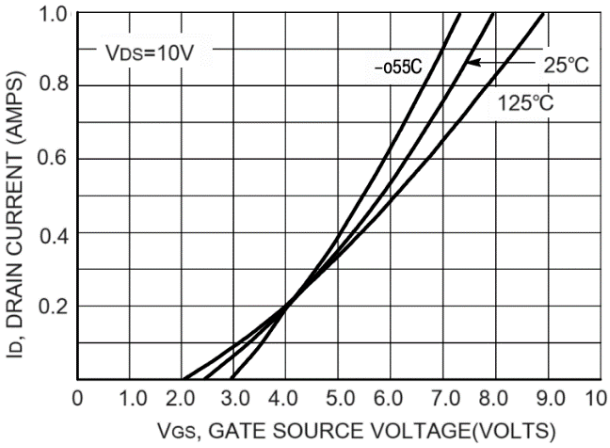


Fig 3. Temperature vs Static Drain–Source On–Resistance

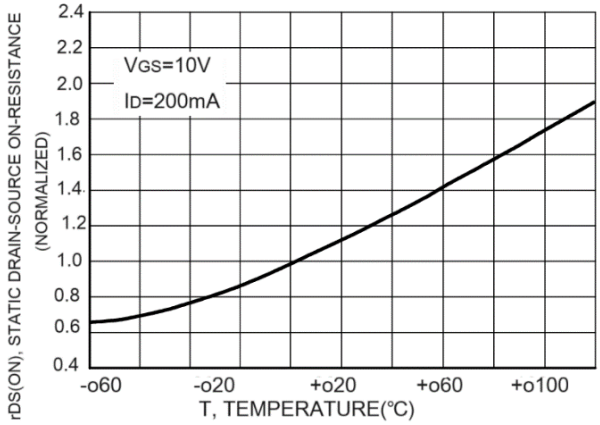
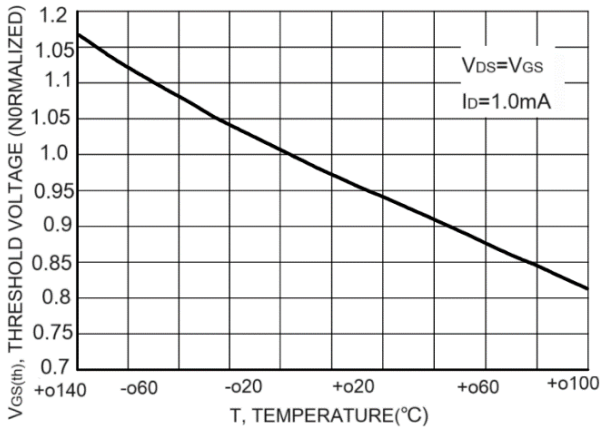
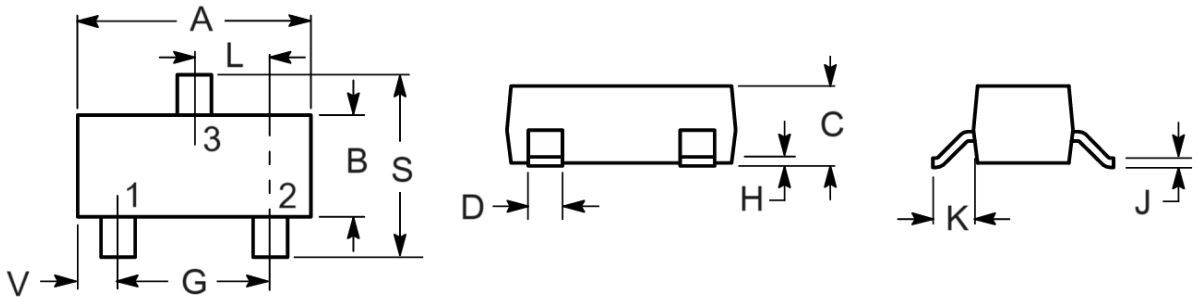


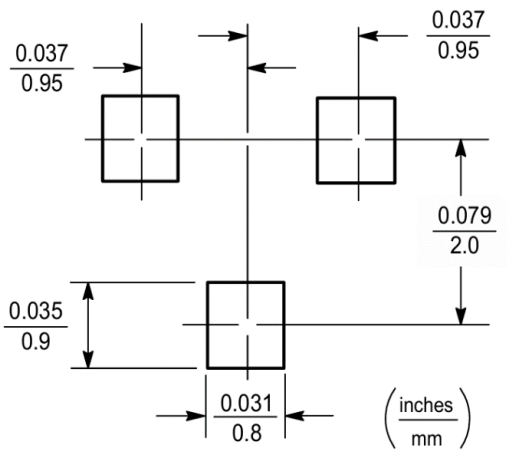
Fig 4. Temperature vs. Gate Threshold Voltage



PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)





Symbol	Millimeters (mm)	
	Min.	Max.
A	2.800	3.040
B	1.200	1.400
C	0.890	1.110
D	0.370	0.500
G	1.780	2.040
H	0.013	0.100
J	0.085	0.177
K	0.350	0.690
L	0.890	1.020
S	2.100	2.640
V	0.450	0.600

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