

60V N-Channel MOSFET



Features

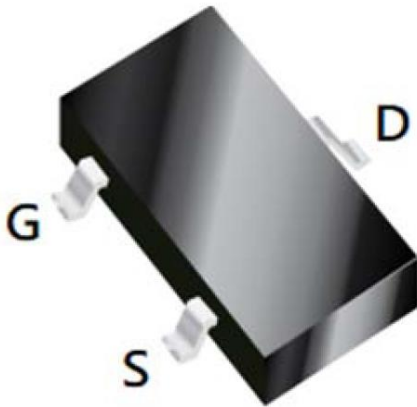
- $R_{DS(ON)} \leq 3\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 3.2\Omega @ V_{GS}=4.5V$
- High Density Cell Design For Ultra Low On-Resistance
- Very Low Leakage Current In Off Condition
- ESD Protected 2KV HBM
- AEC-Q101 qualified

BV_{DSS}	$R_{DS(ON)}$	I_D
60 V	3.0 Ω	320.00 mA

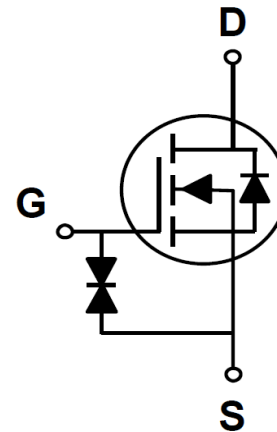
Ordering Information

Part Name	Description
FX2N7002KMEH-06S3	RoHs
FX2N7002KMEH-06S3G	RoHs, Halogen Free
FX2N7002KMEH-06S3Q	AEC-Q101 qualified

Package type : SOT-23



Graphic Symbol



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Absolute Maximum Ratings

T_A=25°C unless otherwise noted

Symbol	Parameter	Rating	Unit
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current - Continuous	320	mA
I _{DM}	Pulsed Drain Current (Note 1)	2000	mA
P _D	Total Power Dissipation (Note 3)	350	mW
T _J	Operating Junction Temperature Range	-55 to 150	°C
T _{STG}	Storage Temperature Range	-55 to 150	°C

Thermal Resistance Ratings

Symbol	Parameter	Max	Unit
R _{θJA}	Thermal Resistance Junction to Ambient	357	°C/W

Electrical Characteristics

(T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 10μA	60	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 60V, V _{GS} = 0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	---	---	±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	1.0	---	2.1	V
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = 5V, I _D = 50mA	---	---	2.8	Ω
		V _{GS} = 4.5V, I _D = 200mA	---	---	3.2	
		V _{GS} = 10V, I _D = 500mA	---	---	3.0	
g _{fs}	Forward Transconductance	V _{DS} = 10V, I _D = 250mA	---	300	---	mS

Charges, Capacitance & Gate Resistance

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
Q _g	Total Gate Charge	V _{DS} = 15V, V _{GS} = 5V, I _D = 200mA	---	---	0.8	nC
C _{ISS}	Input Capacitance	V _{DS} = 25V, V _{GS} = 0V, F = 1MHz	---	---	35	pF
C _{OSS}	Output Capacitance		---	---	12	
C _{RSS}	Reverse Transfer Capacitance		---	---	7	

Switching Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
t _{d(on)}	Turn-On Delay Time	V _{DS} = 30V, V _{GEN} = 10V, R _G = 10Ω, I _D = 200mA, R _L = 150Ω	---	6	---	ns
t _{d(off)}	Turn-Off Delay Time		---	13	---	

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Drain-Source Diode Characteristics and Ratings

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_S	Continuous Source Current		---	---	300	mA
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=200mA$	---	0.82	1.1	V
t_{rr}	Reverse Recovery Time	$V_{GS}=0V, V_{DD}=30V, I_S=1A,$	---	16.42	---	nS
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/us$	---	9.02	---	nC

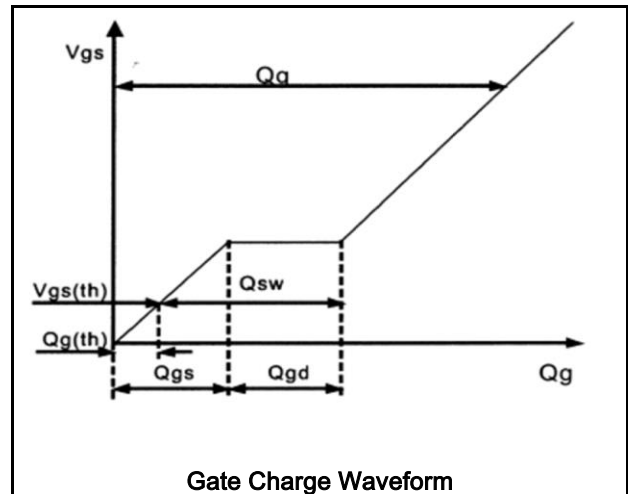
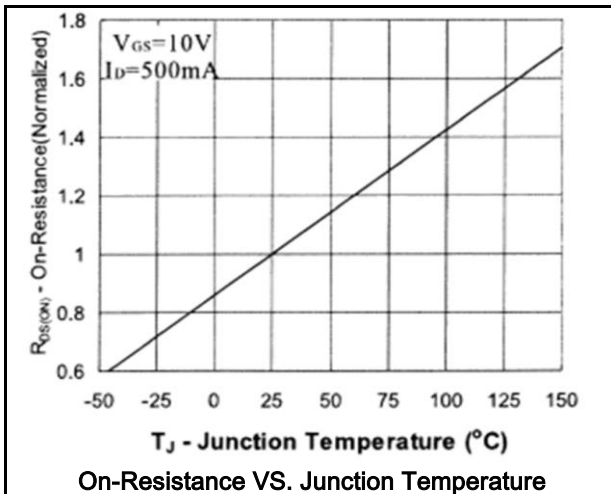
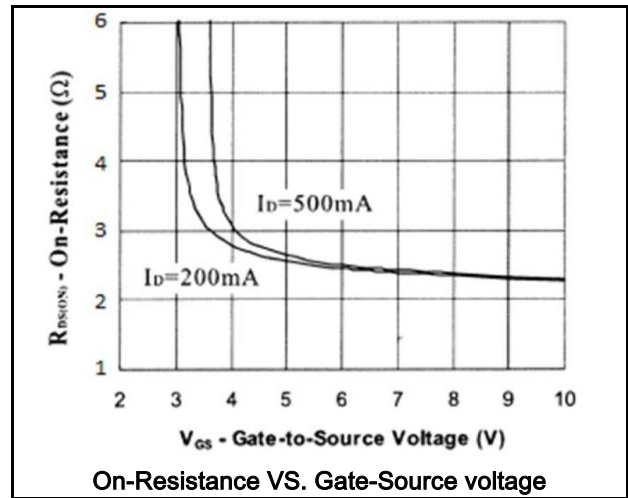
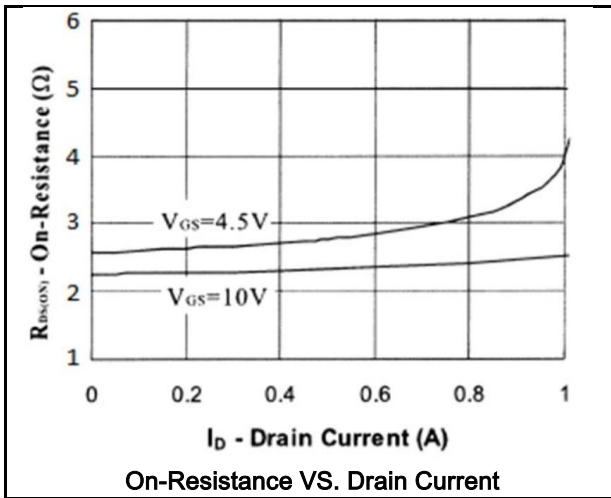
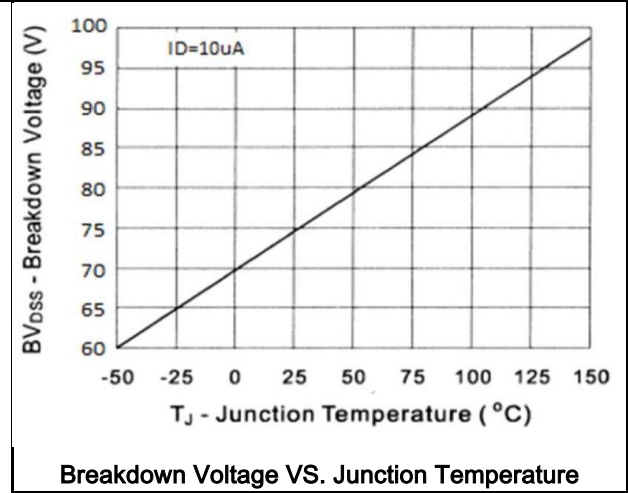
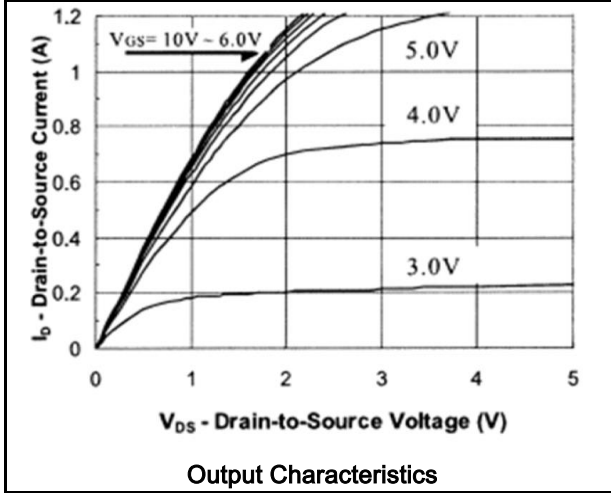
Notes

1. Maximum DC current limited by the package
2. Pulse test : pulse width $\leq 300us$, duty cycle $\leq 2.0\%$.
3. 1*MRP FR-4 PC board, 2oz.

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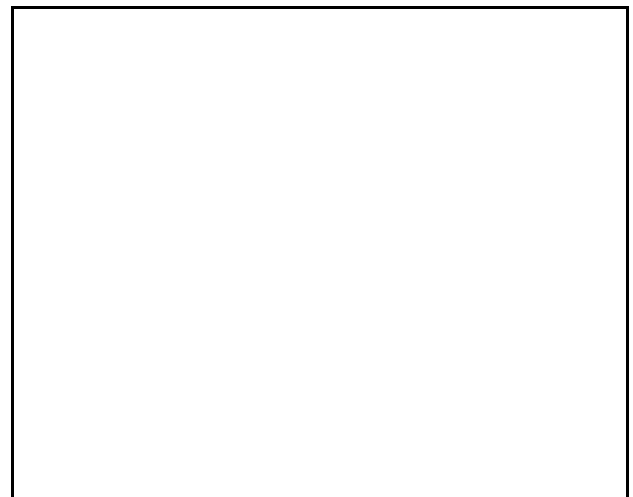
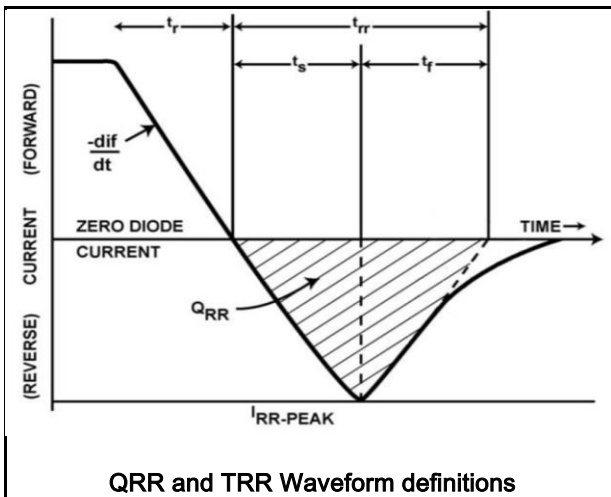
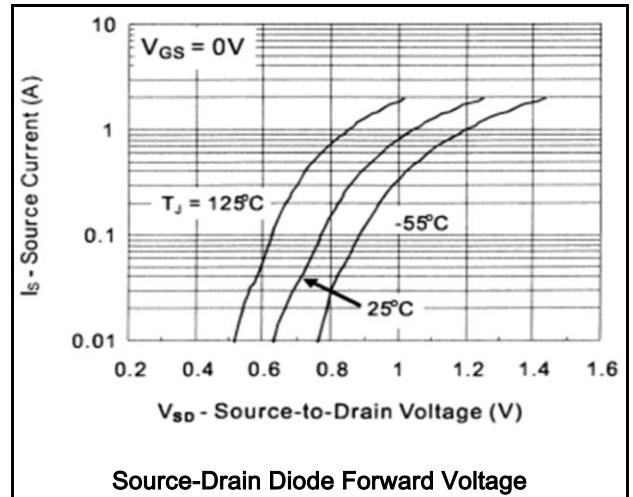
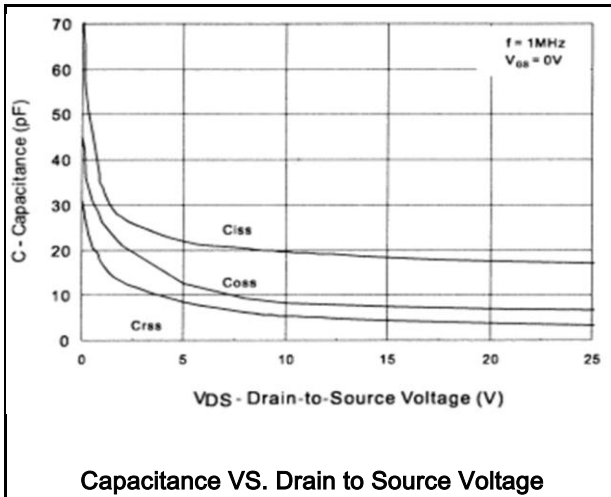
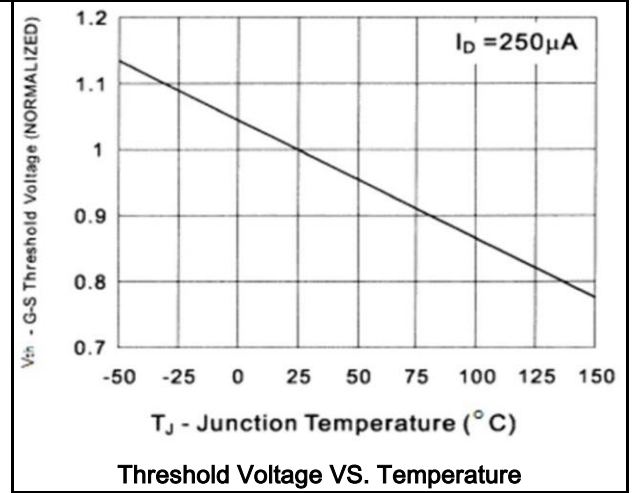
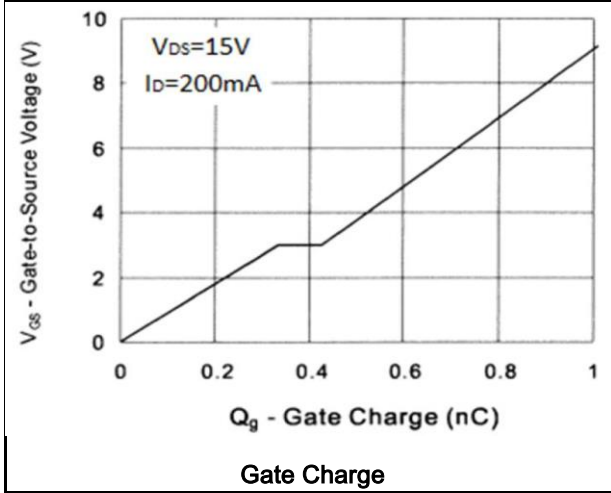
Characteristics Curves



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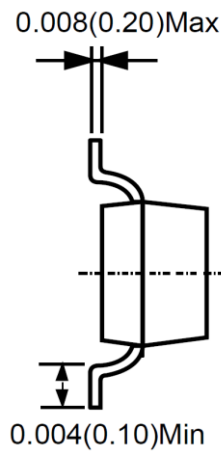
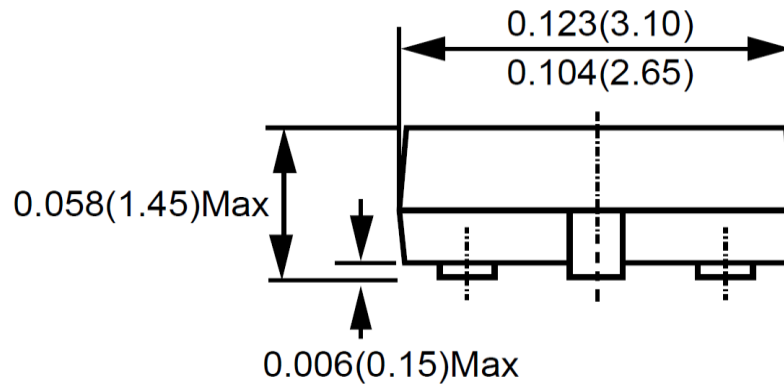
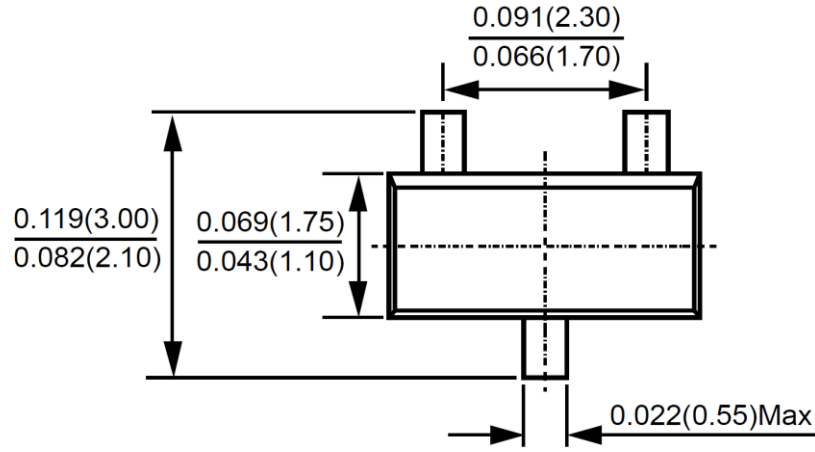
Characteristics Curves



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Package Outline Dimensions



TO-263

Dimensions in inches and (millimeters)



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