

**55V N-Channel MOSFET**



**Features**

- 55V, 0.36A,  $R_{DS(ON)}=1.6\Omega@V_{GS}=10V$
- ESD Protected
- Fast switching
- Green Device Available

$BV_{DSS}$	$R_{DS(ON)}$	$I_D$
55 V	1.6 $\Omega$	360 mA

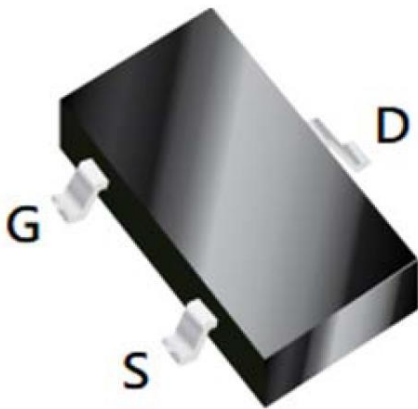
**Ordering Information**

Part Name	Description
FXBSS138MEH-05S3	RoHs
FXBSS138MEH-05S3G	RoHs, Halogen Free
FXBSS138MEH-05S3Q	AEC-Q101 qualified

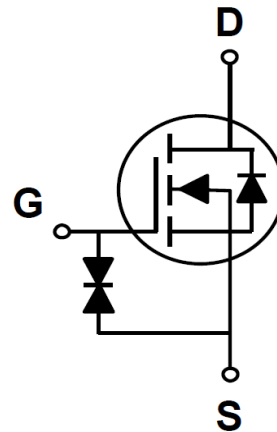
**Applications**

- Load Switch
- Hand-Held Instruments

**Package type : SOT-23**



**Graphic Symbol**



55V N-Channel MOSFET



**Absolute Maximum Ratings**

T<sub>A</sub>=25°C unless otherwise noted

Symbol	Parameter	Rating	Unit
V <sub>DS</sub>	Drain-Source Voltage	55	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Drain Current - Continuous	360	mA
I <sub>DM</sub>	Pulsed Drain Current	2000	mA
P <sub>D</sub>	Total Power Dissipation (T <sub>A</sub> =25°C) (Note 1)	350	mW
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C

**Thermal Resistance Ratings**

Symbol	Parameter	Max	Unit
R <sub>θJA</sub>	Thermal Resistance Junction to Ambient	357	°C/W

**Electrical Characteristics**

(T<sub>J</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA	55	---	---	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> = 55V, V <sub>GS</sub> = 0V	---	---	1	μA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V	---	---	±10	μA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.8	---	1.5	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 100mA	---	2.6	4.5	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 200mA	---	1.5	2.5	
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 500mA	---	1.3	1.6	
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> = 10V, I <sub>D</sub> = 250mA	300	---	---	mS

**Charges, Capacitance & Gate Resistance**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 5V, I <sub>D</sub> = 200mA	---	---	1	nC
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, F = 1MHz	---	---	50	pF
C <sub>OSS</sub>	Output Capacitance		---	7	---	
C <sub>RSS</sub>	Reverse Transfer Capacitance		---	4	---	

**Switching Characteristics**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> = 30V, V <sub>GEN</sub> = 10V, R <sub>G</sub> = 10Ω, I <sub>D</sub> = 200mA, R <sub>L</sub> = 150Ω	---	1.3	---	ns
t <sub>d(off)</sub>	Turn-Off Delay Time		---	5.5	---	

55V N-Channel MOSFET



**Drain-Source Diode Characteristics and Ratings**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$I_S$	Continuous Source Current	$V_G=V_D=0V$ , Force Current	---	---	500	mA
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V$ , $I_S=500mA$	---	0.94	1.2	V
$t_{rr}$	Reverse Recovery Time	$V_{GS}=0V$ , $V_{DD}=30V$ , $I_S=1A$ ,	---	14.40	---	nS
$Q_{rr}$	Reverse Recovery Charge	$di/dt=100A/us$	---	5.8	---	nC

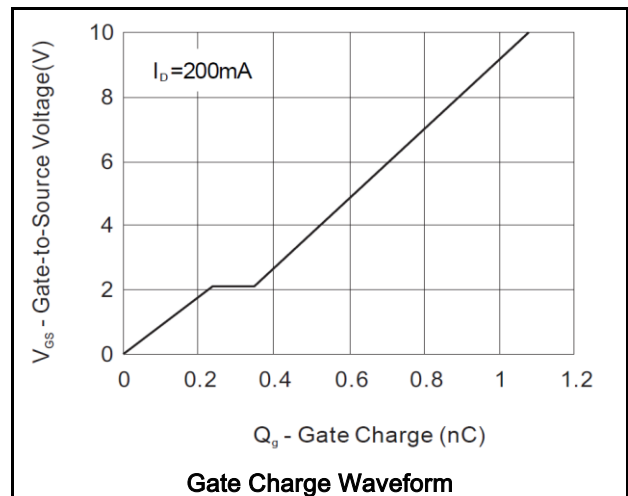
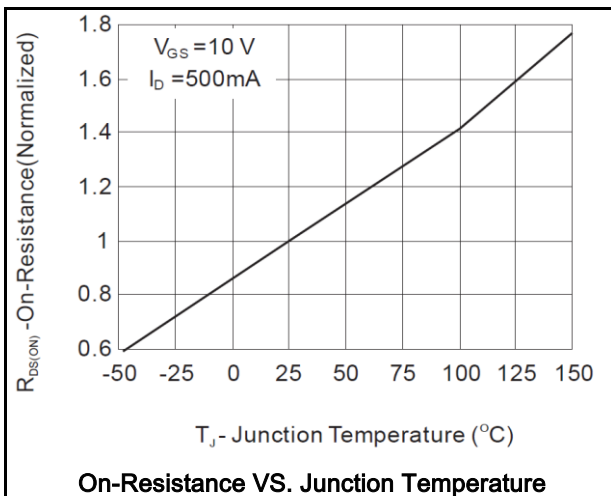
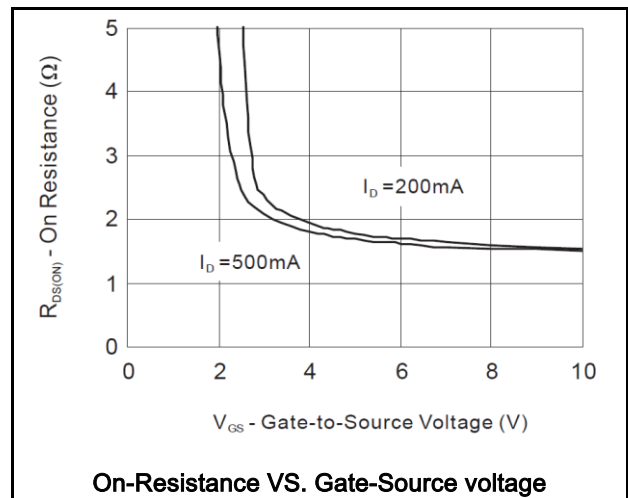
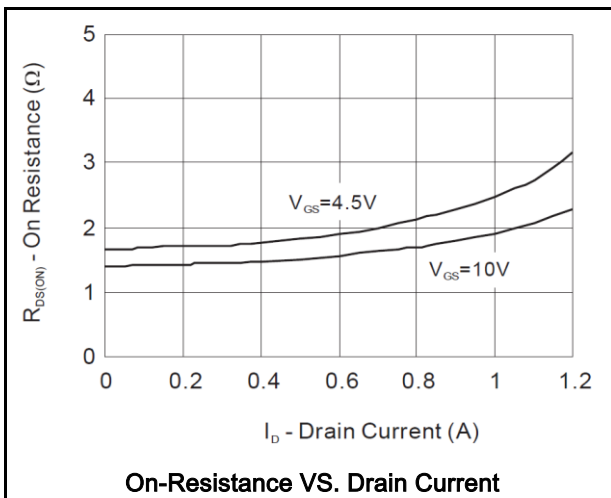
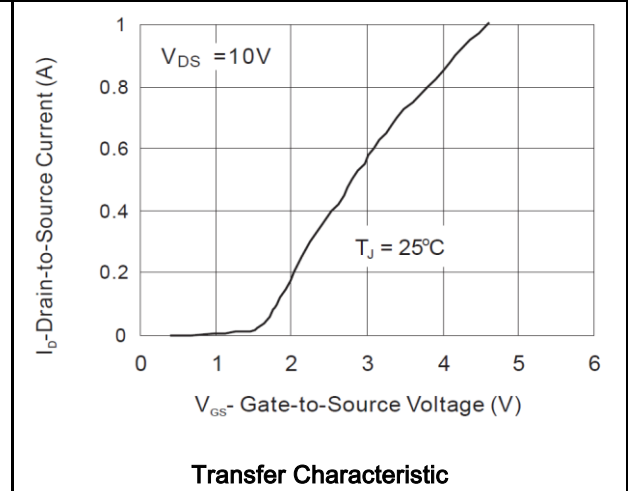
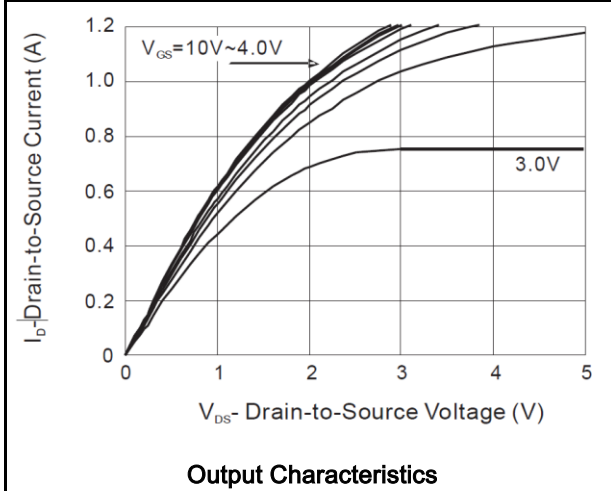
**Notes**

- \*MRP FR-4 PC board,2oz.

55V N-Channel MOSFET



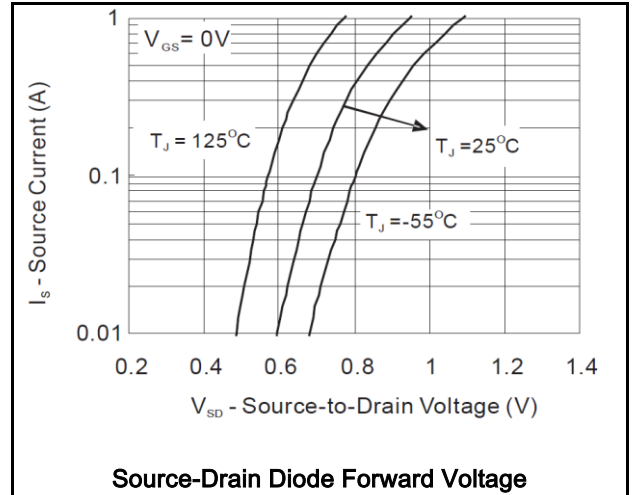
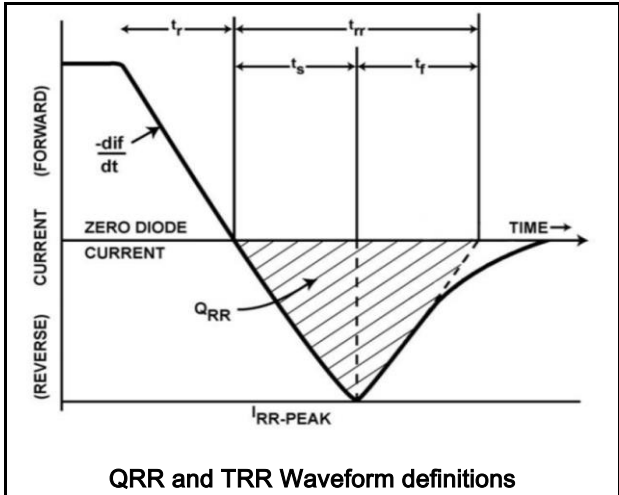
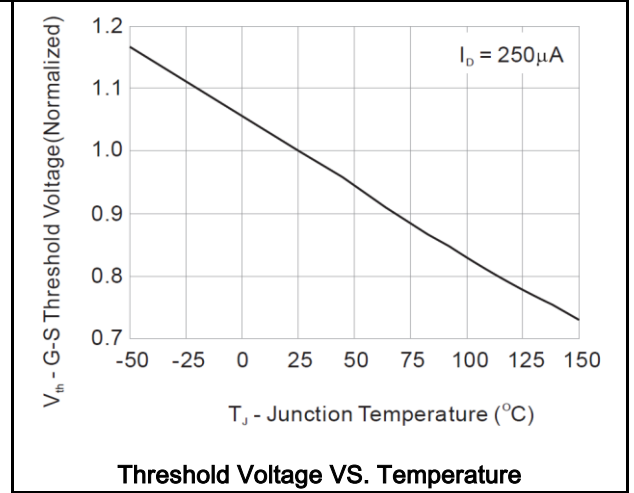
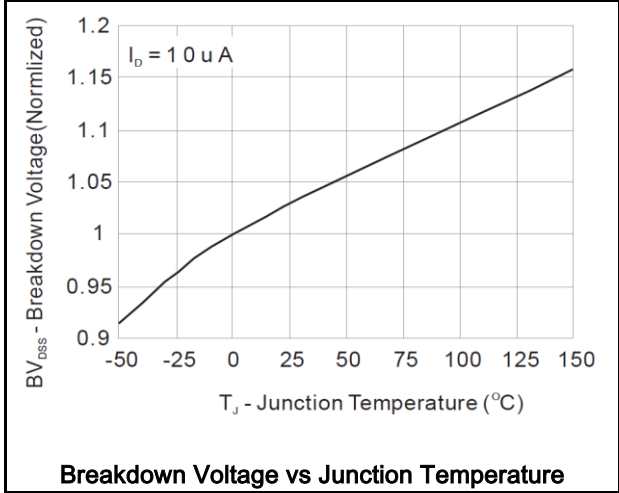
Characteristics Curves



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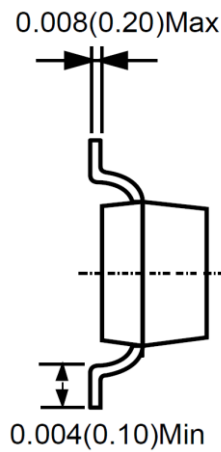
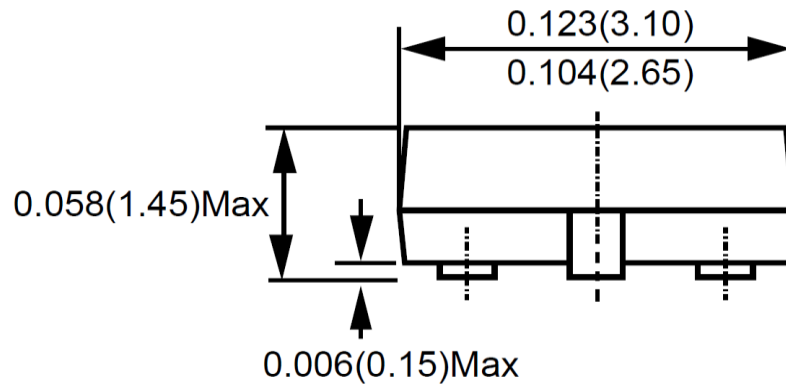
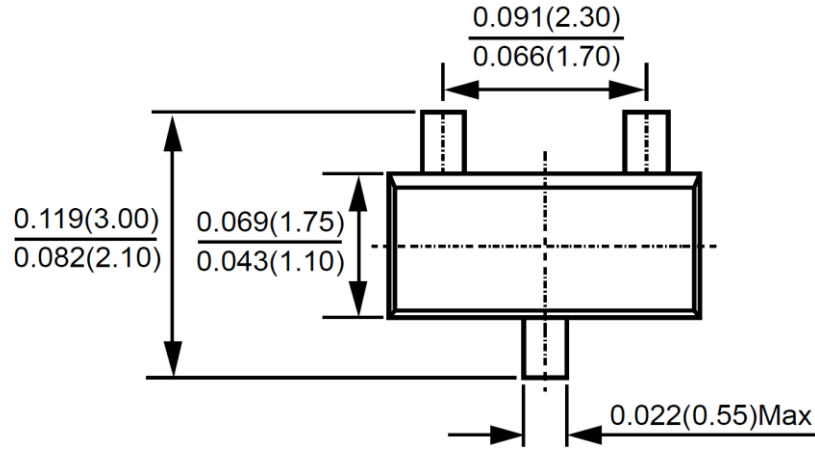
**Characteristics Curves**



55V N-Channel MOSFET



Package Outline Dimensions



TO-263

Dimensions in inches and (millimeters)



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