

**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
FXBSS138DWMEH-05S3	RoHs
FXBSS138DWMEH-05S3G	RoHs, Halogen Free

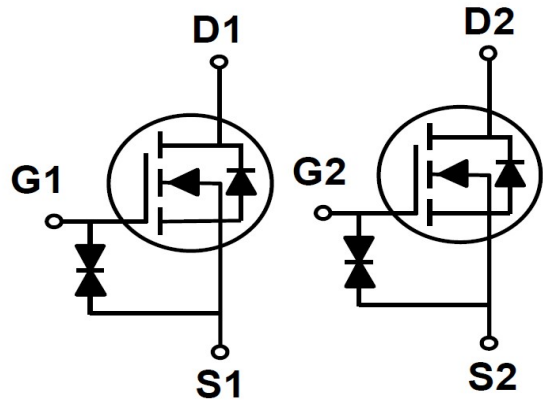
**Applications**

- Load Switch
- Hand-Held Instruments

Package type : SOT-363



Graphic Symbol



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**Absolute Maximum Ratings**

$T_A=25^{\circ}\text{C}$  unless otherwise noted

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-Source Voltage	55	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current - Continuous	360	mA
$I_{DM}$	Pulsed Drain Current	1200	mA
$P_D$	Total Power Dissipation ( $T_A=25^{\circ}\text{C}$ ) (Note 1)	275	mW
$T_J$	Operating Junction Temperature Range	-55 to 150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150	$^{\circ}\text{C}$

**Thermal Resistance Ratings**

Symbol	Parameter	Max	Unit
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	450	$^{\circ}\text{C/W}$

**Electrical Characteristics**

( $T_J=25^{\circ}\text{C}$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}, I_D=10\mu\text{A}$	55	---	---	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=55\text{V}, V_{GS}=0\text{V}$	---	---	1	$\mu\text{A}$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$	---	---	$\pm 10$	$\mu\text{A}$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.8	---	1.5	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=2.5\text{V}, I_D=100\text{mA}$	---	2.6	4.5	$\Omega$
		$V_{GS}=4.5\text{V}, I_D=200\text{mA}$	---	1.5	2.5	
		$V_{GS}=10\text{V}, I_D=500\text{mA}$	---	1.3	1.6	
$g_{fs}$	Forward Transconductance	$V_{DS}=10\text{V}, I_D=250\text{mA}$	300	---	---	mS

**Charges, Capacitance & Gate Resistance**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$Q_g$	Total Gate Charge	$V_{DS}=15\text{V}, V_{GS}=5\text{V}, I_D=200\text{mA}$	---	---	1	nC
$C_{ISS}$	Input Capacitance	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, F=1\text{MHz}$	---	---	50	pF
$C_{OSS}$	Output Capacitance		---	7	---	
$C_{RSS}$	Reverse Transfer Capacitance		---	4	---	

**Switching Characteristics**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=30\text{V}, V_{GS}=10\text{V}, R_G=10\Omega,$ $I_D=200\text{mA}, R_L=150\Omega$	---	1.3	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	5.5	---	

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**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

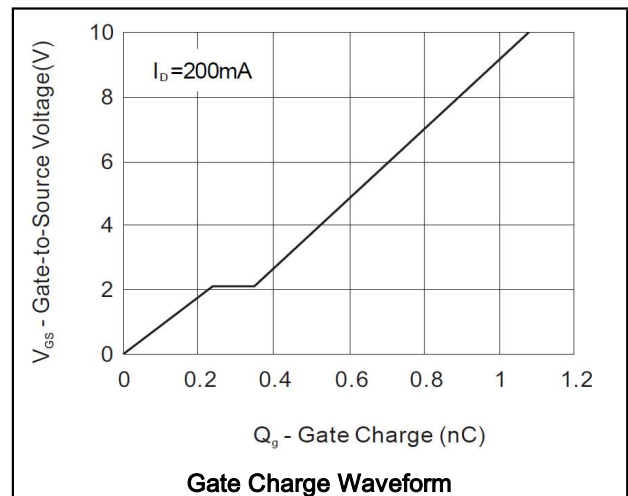
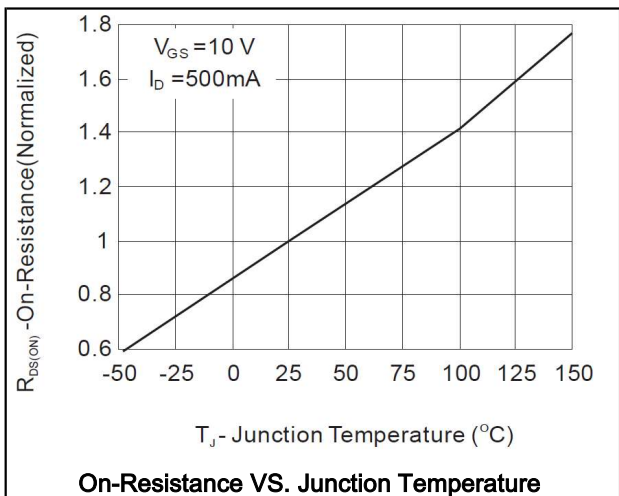
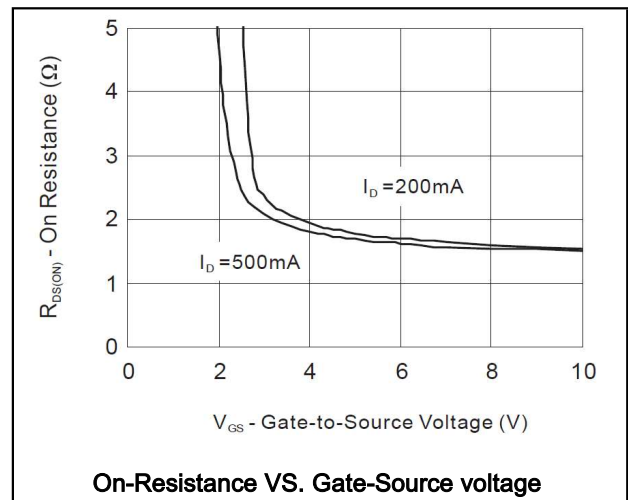
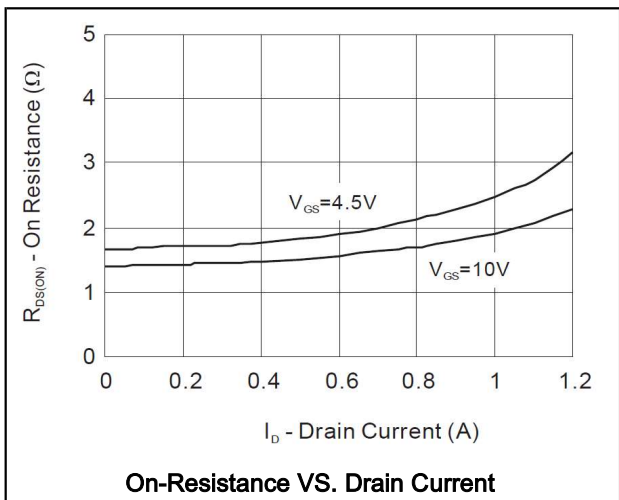
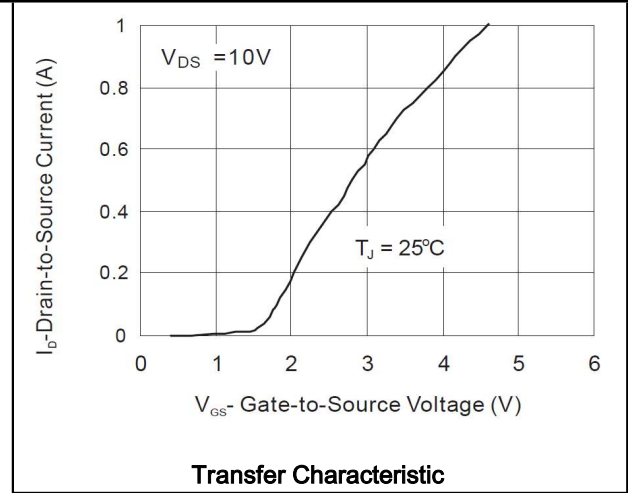
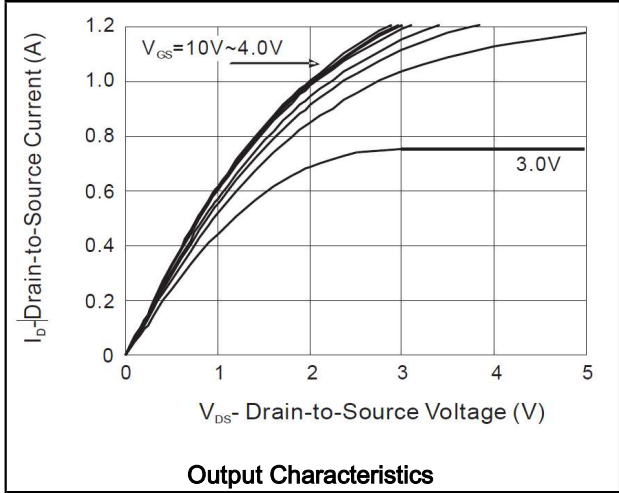
**Notes**

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

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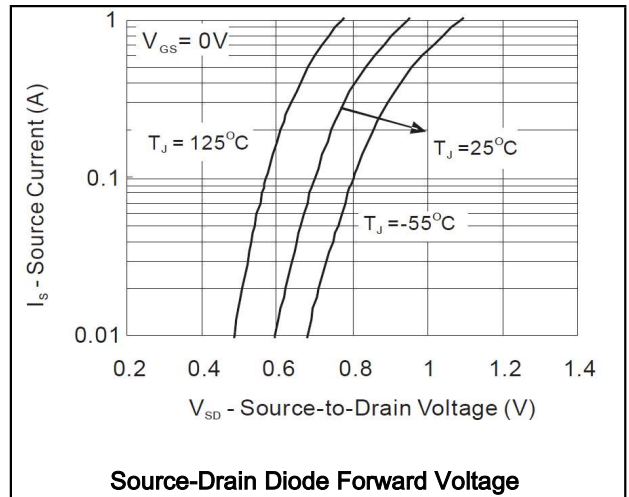
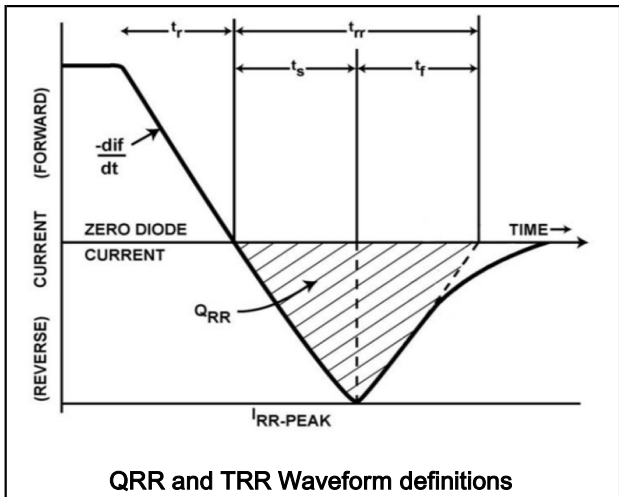
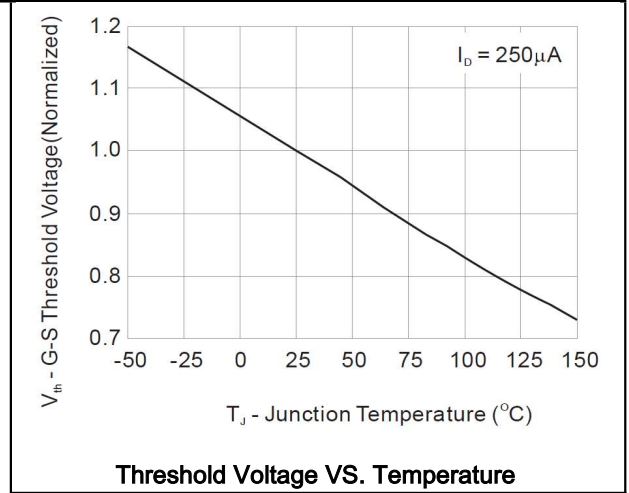
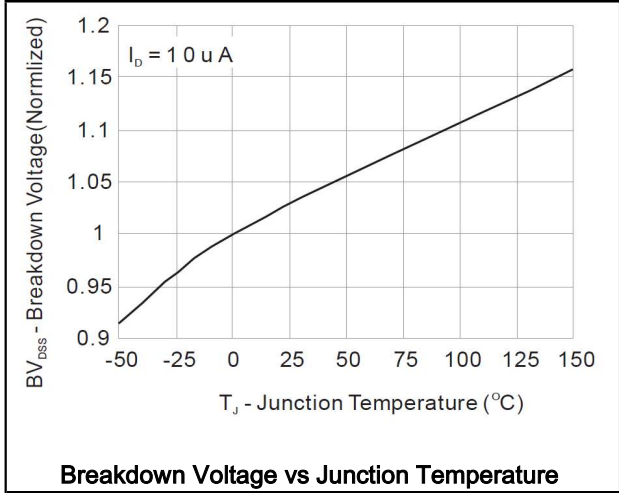
**Characteristics Curves**



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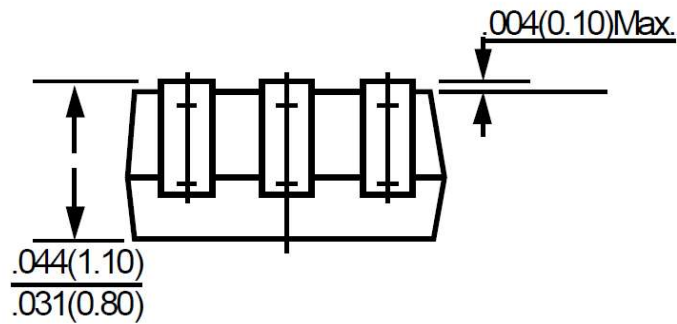
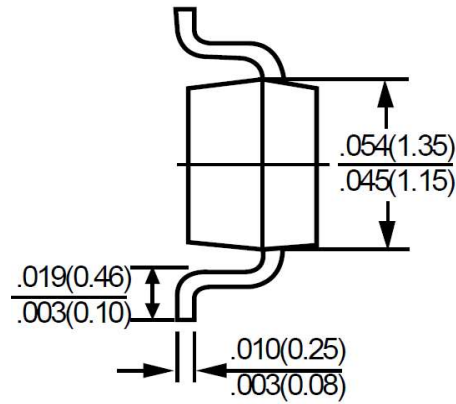
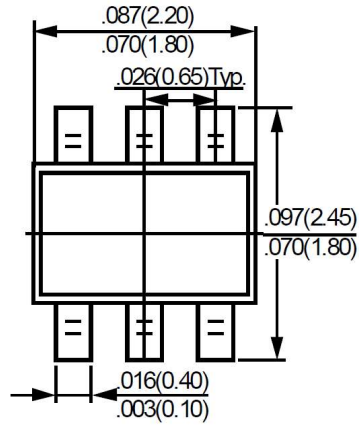
**Characteristics Curves**



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Package Outline Dimensions



STO-363

Dimensions in inches and (millimeters)



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