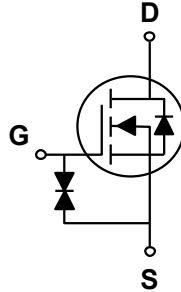
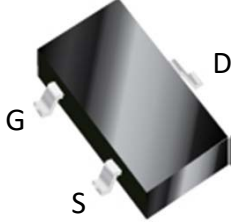




TNMNF16H



55V N-Channel MOSFETs



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

SOT-23

Features

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

Applications

- Case : SOT-23
- Load Switch
- Hand-Held Instruments

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	55	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current - Continuous	360	mA
I_{DM}	Drain Current - Pulsed	2000	mA
P_D	Total Power Dissipation ($T_A=25^\circ\text{C}$) (NOTE 1)	350	mW
T_J	Operating Junction Temperature Range	-50 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-50 to 150	$^\circ\text{C}$
Marking Code		E38	

NOTES :

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

Thermal Characteristics

Symbol	Parameter	Typ.	Max	Unit
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	---	357	$^\circ\text{C}/\text{W}$



Electrical Characteristics (T_J=25°C, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =10uA	55	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =55V, V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±10	uA

On Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =2.5V, I _D =100mA	---	2.6	4.5	Ω
		V _{GS} =4.5V, I _D =200mA	---	1.5	2.5	
		V _{GS} =10V, I _D =500mA	---	1.3	1.6	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	0.8	---	1.5	V
gfs	Forward Transconductance	V _{DS} =10V, I _D =250mA	300	---	---	mS

Dynamic and switching Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =5V, I _D =200mA	---	---	1	nC
T _{d(on)}	Delay Turn-On Time	V _{DD} =30V, R _L =150Ω, V _{GS} =10V, R _G =10Ω, I _D =200mA	---	1.3	---	ns
T _{d(off)}	Delay Turn-Off Time		---	5.5	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, F=1MHz	---	---	50	pF
C _{oss}	Output Capacitance		---	7	---	
C _{rss}	Reverse Transfer Capacitance		---	4	---	

Drain-Source Diode Characteristics and Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
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, dI _S /dt=100A/us	---	14.4	---	nS
Q _{rr}	Reverse Recovery Charge		---	5.8	---	nC



Characteristics Curves

FIG. 1-Output Characteristic

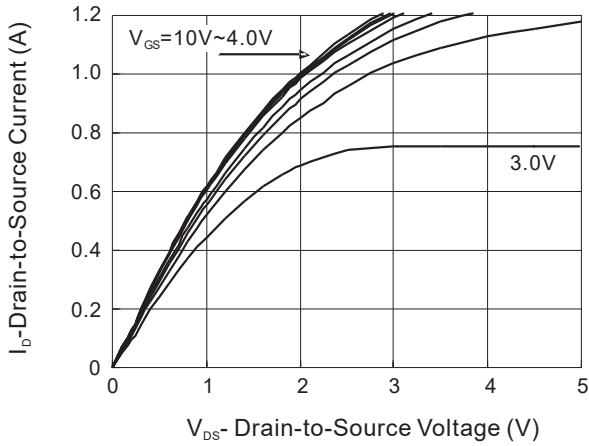


FIG. 2-Transfer Characteristic

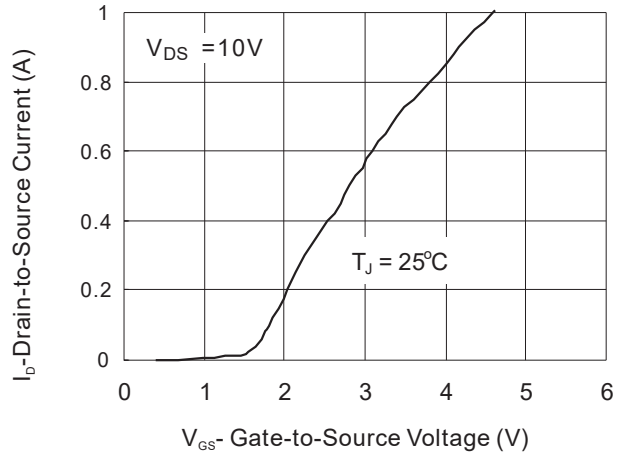


FIG. 3-On-Resistance vs Drain Current

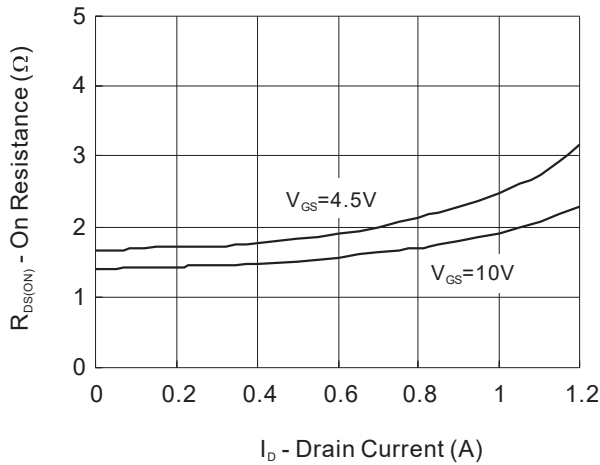


FIG. 4-On-Resistance vs Gate to Source Voltage

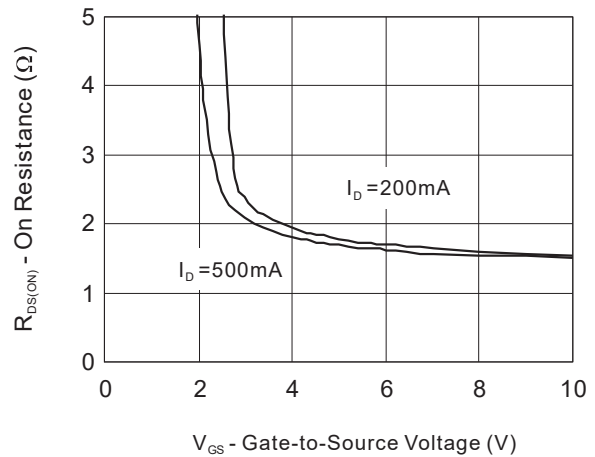


FIG. 5-On-Resistance vs Junction Temperature

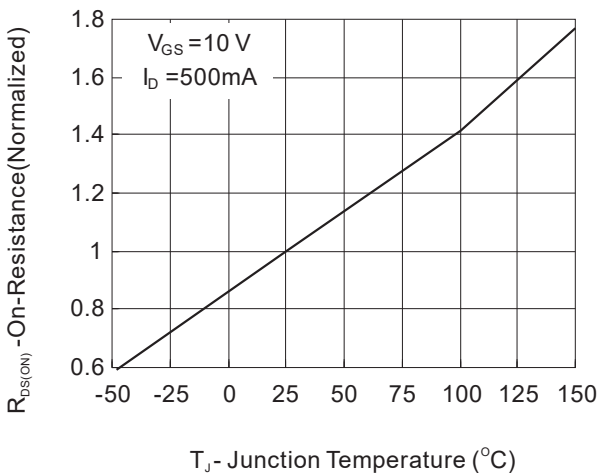
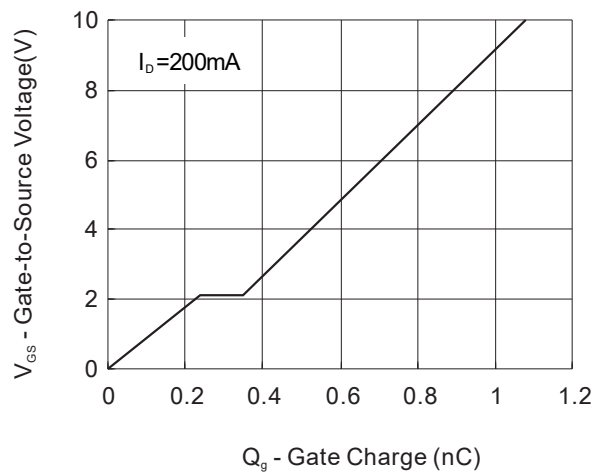


FIG. 6-Gate Charge Waveform





Characteristics Curves

FIG. 7-Source-Drain Diode Forward Voltage

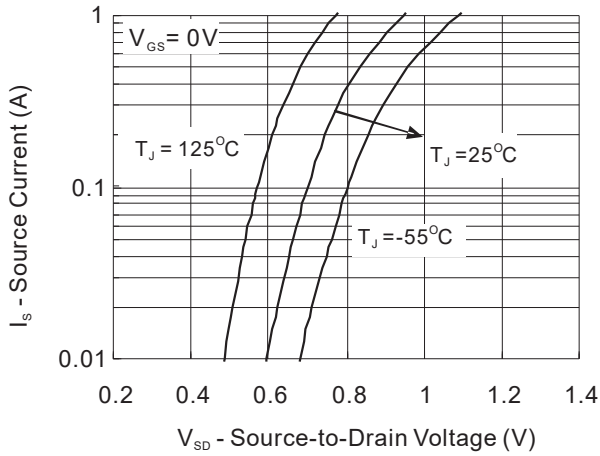


FIG. 8-Threshold Voltage vs Temperature

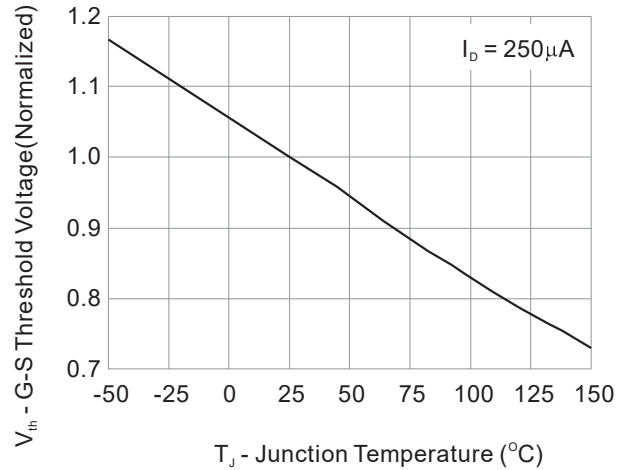


FIG. 9-Breakdown Voltage vs Junction Temperature

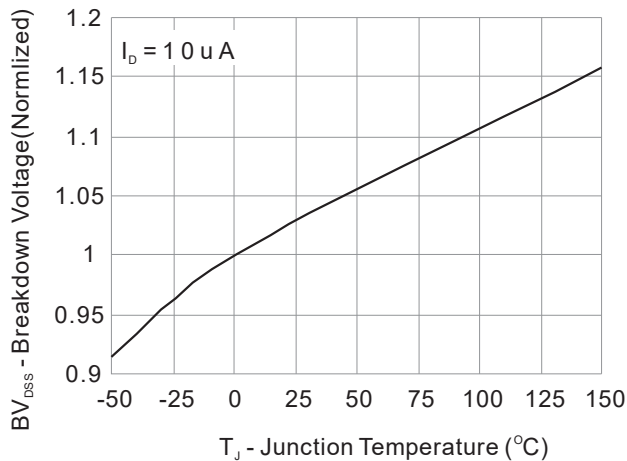
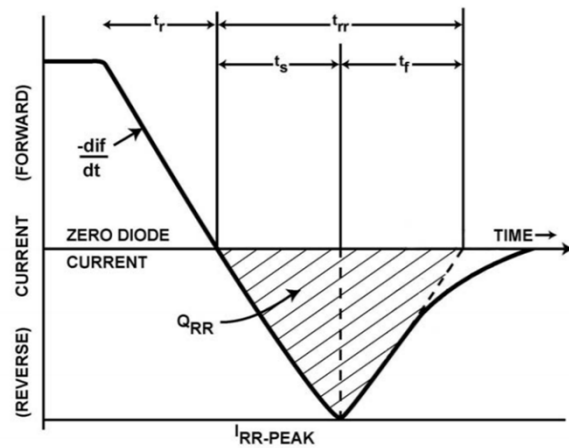
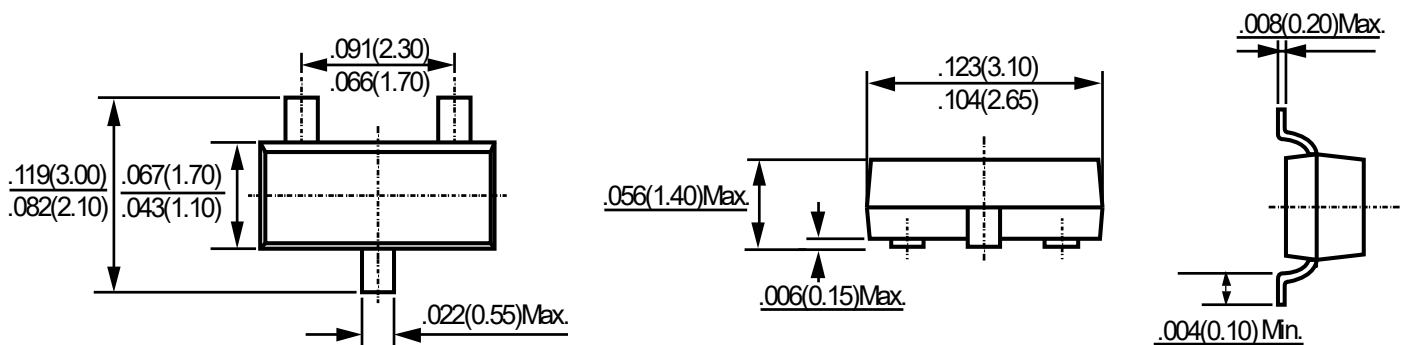


FIG. 10-QRR and TRR Waveform definitions



Package Outline Dimensions



SOT-23

Dimensions in inches and (millimeters)



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