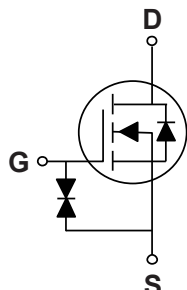
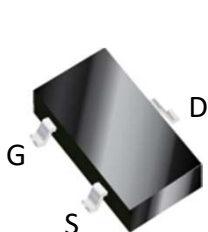




TPMNG30HA



60V N-Channel MOSFETs



BV_{DSS}	$R_{DS(ON)}$	I_D
60 V	3 Ω	300 mA

SOT-323

Features

- $R_{DS(ON)} \leq 3\Omega @ V_{GS}=10V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

Applications

- Notebook
- Load Switch
- Battery Protection
- Hand-Held Instruments

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current - Continuous	300	mA
I_{DM}	Drain Current - Pulsed (NOTE 1)	1.2	A
P_D	Power Dissipation	300	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 Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	417	-	$^\circ\text{C/W}$

**60V N-Channel MOSFETs****Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)****Off Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	60	---	---	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 10	μA

On Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=500mA$	---	---	3	Ω
		$V_{GS}=4.5V$, $I_D=200mA$	---	---	3.6	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1.1	---	2.4	V
g_{fs}	Forward Transconductance	$V_{DS}=15V$, $I_D=250mA$	---	300	---	mS

Dynamic and switching Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Q_g	Total Gate Charge	$V_{DS}=15V$, $V_{GS}=5V$, $I_D=200mA$	---	---	0.8	nC
$T_{d(on)}$	Delay Turn-On Time	$V_{DD}=30V$, $R_L=150\Omega$, $I_D=200mA$, $V_{GEN}=10V$, $R_G=10\Omega$	---	6	---	nS
$T_{d(off)}$	Delay Turn-Off Time		---	13	---	
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	

Drain-Source Diode Characteristics and Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current		---	---	300	mA
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=200mA$	---	---	1.2	V

NOTES :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.



60V N-Channel MOSFETs

Characteristics Curves

FIG. 1-Breakdown Voltage VS. Junction Temperature

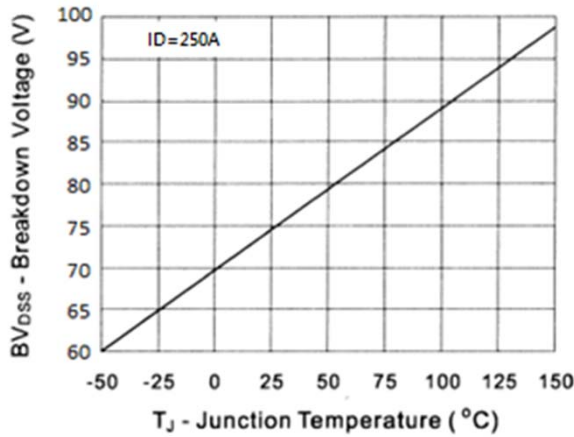


FIG. 2-On-Resistance VS. Junction Temperature

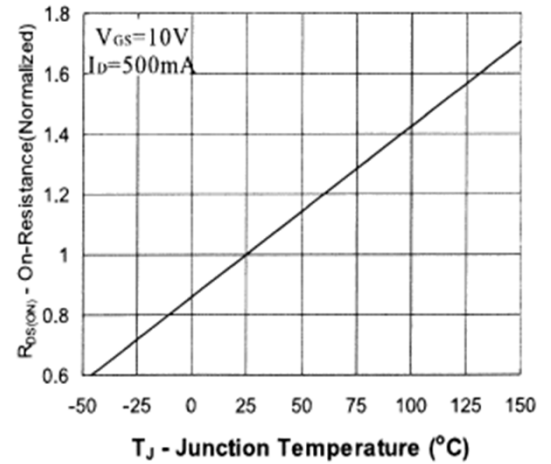


FIG. 3-On-Resistance VS. Drain Current

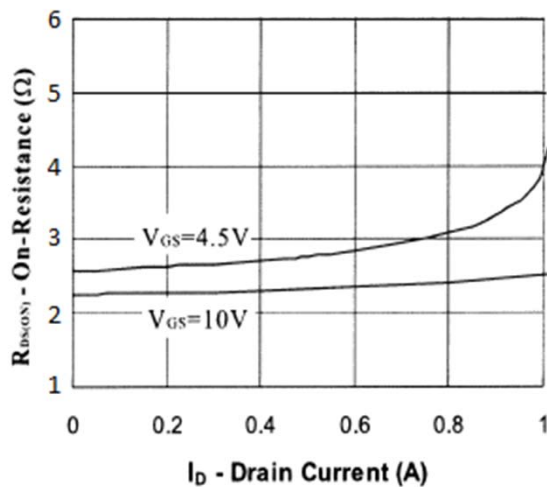


FIG. 4-On-Resistance VS. Gate-Source voltage

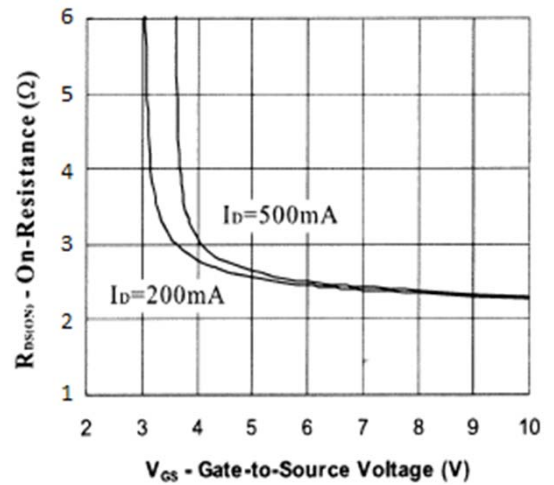


FIG. 5-Gate Charge Waveform

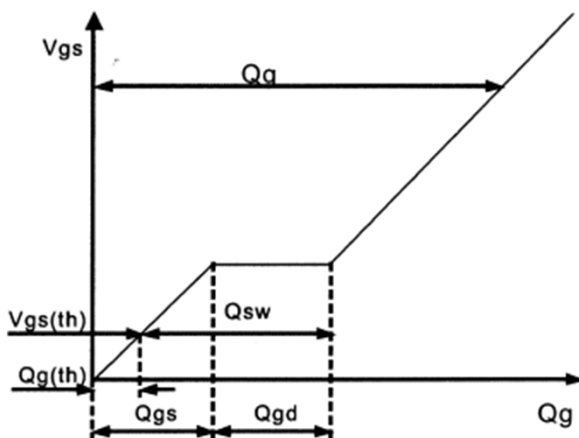
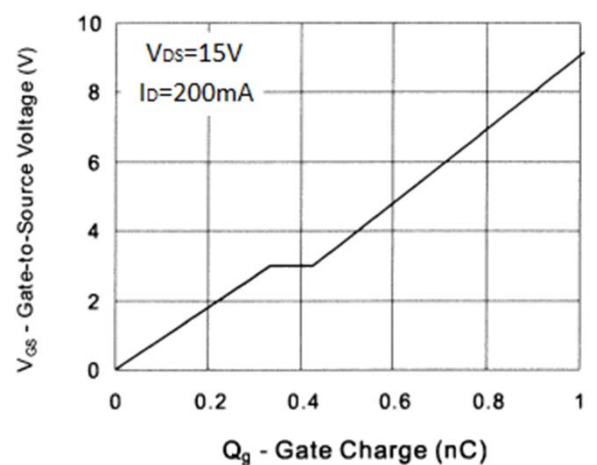


FIG. 6-Gate Charge

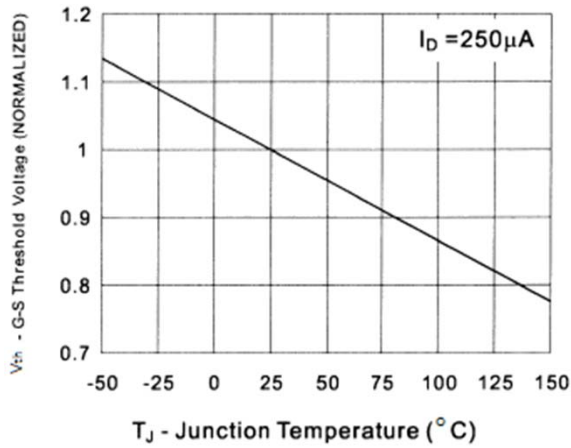




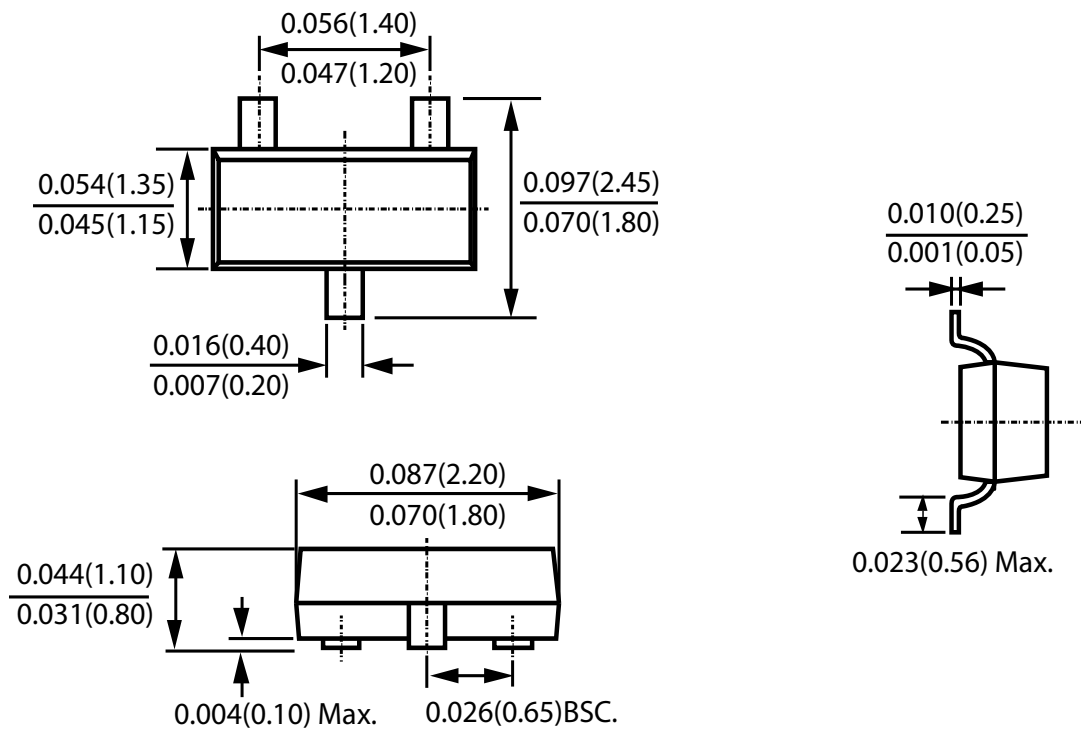
60V N-Channel MOSFETs

Characteristics Curves

FIG. 7-Threshold Voltage VS. Temperature



Package Outline Dimensions



SOT-323

Dimensions in inches and (millimeters)



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