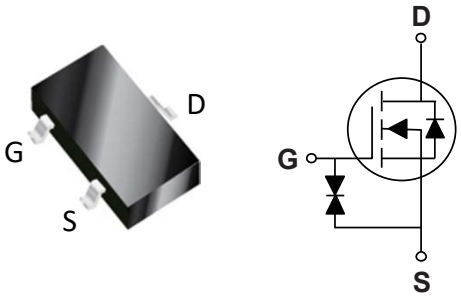
TPMNG30HA

60V N-Channel MOSFETs



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

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Features

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

Applications

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

Absolute Maximum Ratings $T_C=25^oC$ 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	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	417	-	°C/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=250uA	60	---	---	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=60V , 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}=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=250uA	1.1	---	2.4	V
gfs	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=150Ω, I_D=200mA , V_{GEN}=10V, R_G=10Ω	---	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 ≦ 300us , duty cycle ≦ 2%.

Characteristics Curves

FIG. 1-Breakdown Voltage VS. Junction Temperature

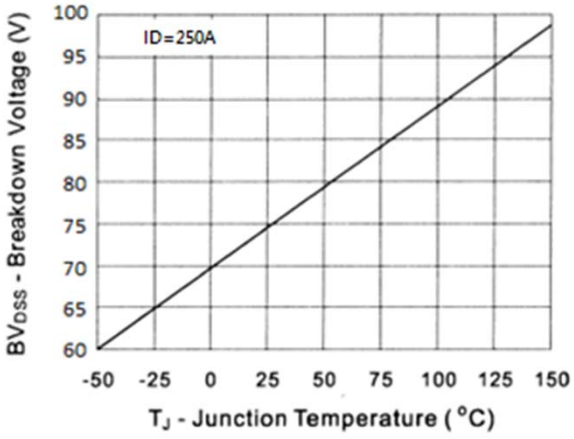


FIG. 2-On-Resistance VS. Junction Temperature

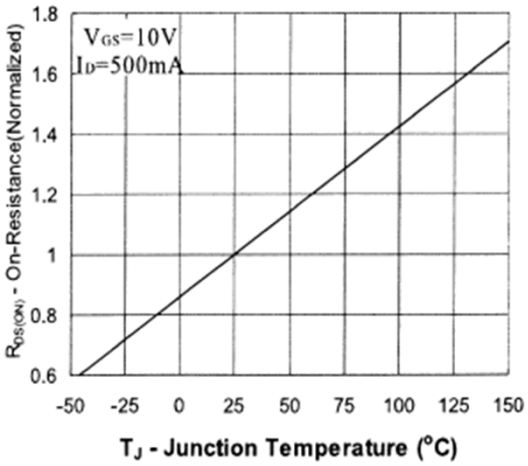


FIG. 3-On-Resistance VS. Drain Current

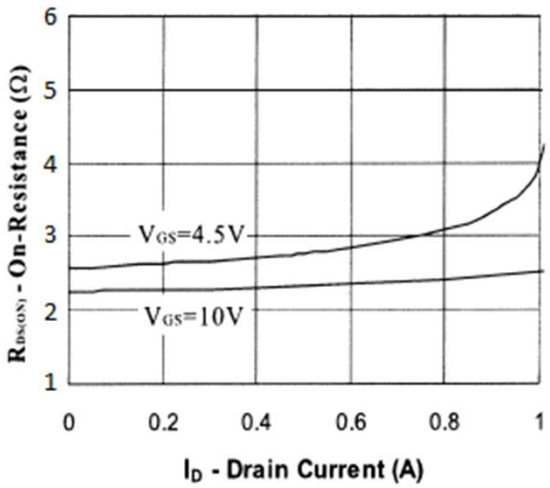


FIG. 4-On-Resistance VS. Gate-Source voltage

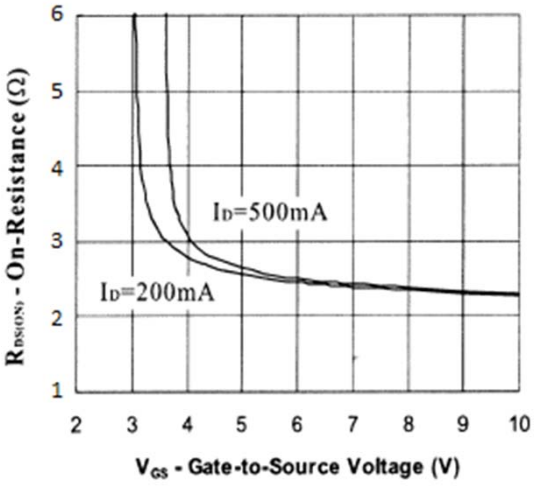


FIG. 5-Gate Charge Waveform

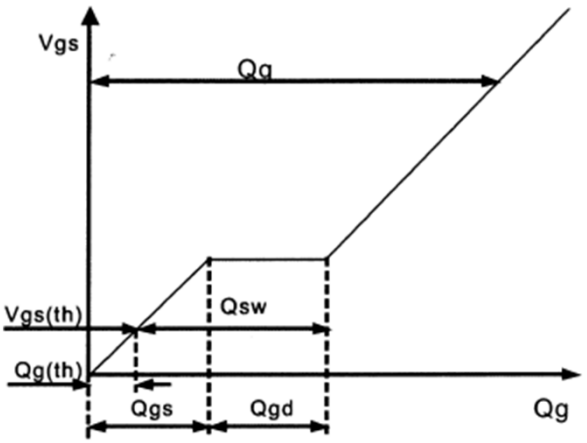
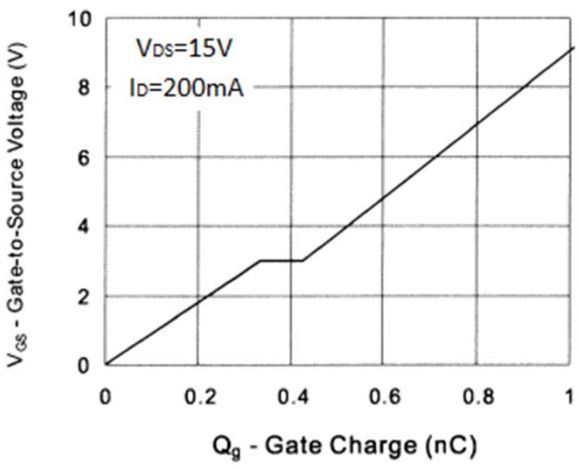
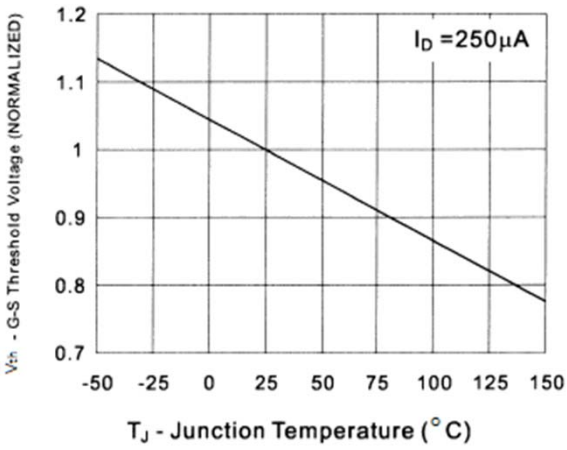


FIG. 6-Gate Charge

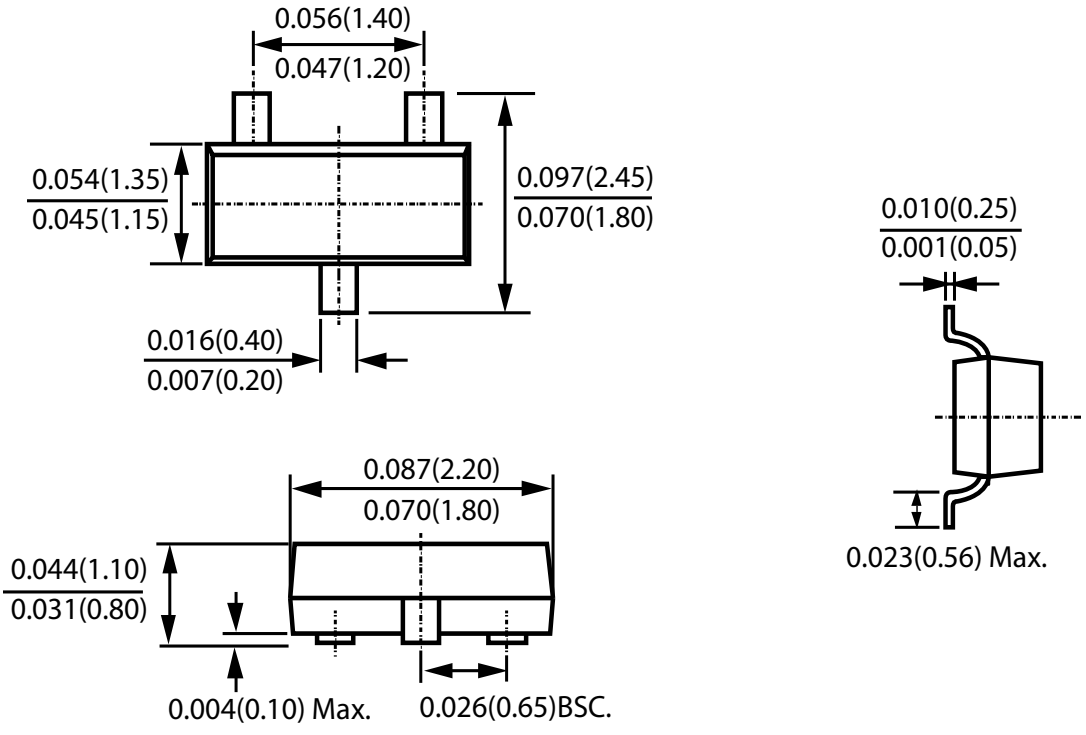


Characteristics Curves

FIG. 7-Threshold Voltage VS. Temperature



Package Outline Dimensions



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Dimensions in inches and (millimeters)

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