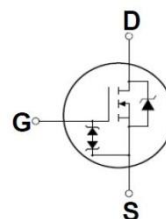
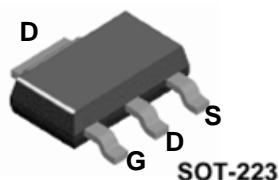


N-channel MOSFET

## Features

- Low gate charge
- 100% avalanche tested
- Improved dv/dt capability
- RoHS compliant
- Halogen free package
- JEDEC Qualification
- ESD improved performance

$BV_{DSS}$	$I_D$	$R_{DS(on)}$
600V	2A	< 4.0Ω



Device	Package	Marking	Remark
TMT2N60ZG	SOT-223	TMT2N60ZG	Halogen Free

## Absolute Maximum Ratings

Parameter	Symbol	TMT2N60ZG	Unit
Drain-Source Voltage	$V_{DSS}$	600	V
Gate-Source Voltage	$V_{GS}$	±30	V
Continuous Drain Current	$I_D$	$T_C = 25\text{ }^\circ\text{C}$	2
		$T_C = 100\text{ }^\circ\text{C}$	1.4
Pulsed Drain Current (Note 1)	$I_{DM}$	8	A
Single Pulse Avalanche Energy (Note 2)	$E_{AS}$	128	mJ
Repetitive Avalanche Current (Note 1)	$I_{AR}$	2	A
Repetitive Avalanche Energy (Note 1)	$E_{AR}$	5.2	mJ
Power Dissipation	$P_D$	$T_C = 25\text{ }^\circ\text{C}$	52
		Derate above 25 °C	0.416
Peak Diode Recovery dv/dt (Note 3)	dv/dt	4.5	V/ns
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	°C
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	$T_L$	300	°C

\* Limited only by maximum junction temperature

## Thermal Characteristics

Parameter	Symbol	TMT2N60ZG	Unit
Maximum Thermal resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W

**Electrical Characteristics :  $T_C=25^\circ\text{C}$ , unless otherwise noted**

Parameter	Symbol	Test condition	Min	Typ	Max	Units
<b>OFF</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	600	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 600\text{ V}, V_{GS} = 0\text{ V}$	--	--	1	$\mu\text{A}$
		$V_{DS} = 480\text{ V}, T_C = 125^\circ\text{C}$	--	--	10	$\mu\text{A}$
Forward Gate-Source Leakage Current	$I_{GSSF}$	$V_{GS} = 30\text{ V}, V_{DS} = 0\text{ V}$	--	--	100	$\mu\text{A}$
Reverse Gate-Source Leakage Current	$I_{GSSR}$	$V_{GS} = -30\text{ V}, V_{DS} = 0\text{ V}$	--	--	-100	$\mu\text{A}$

**ON**

Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	2	--	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 1.0\text{ A}$	--	3.2	4.0	$\Omega$
Forward Transconductance <sup>(Note 4)</sup>	$g_{FS}$	$V_{DS} = 30\text{ V}, I_D = 1.0\text{ A}$	--	5	--	S

**DYNAMIC**

Input Capacitance	$C_{iss}$	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$	--	400	--	pF
Output Capacitance	$C_{oss}$		--	41	--	pF
Reverse Transfer Capacitance	$C_{rss}$		--	7.5	--	pF

**SWITCHING**

Turn-On Delay Time <sup>(Note 4,5)</sup>	$t_{d(on)}$	$V_{DD} = 300\text{ V}, I_D = 2.0\text{ A},$ $R_G = 25\ \Omega$	--	13	--	ns
Turn-On Rise Time <sup>(Note 4,5)</sup>	$t_r$		--	18	--	ns
Turn-Off Delay Time <sup>(Note 4,5)</sup>	$t_{d(off)}$		--	46	--	ns
Turn-Off Fall Time <sup>(Note 4,5)</sup>	$t_f$		--	20	--	ns
Total Gate Charge <sup>(Note 4,5)</sup>	$Q_g$	$V_{DS} = 480\text{ V}, I_D = 2.0\text{ A},$ $V_{GS} = 10\text{ V}$	--	9.6	--	nC
Gate-Source Charge <sup>(Note 4,5)</sup>	$Q_{gs}$		--	1.6	--	nC
Gate-Drain Charge <sup>(Note 4,5)</sup>	$Q_{gd}$		--	4.3	--	nC

**SOURCE DRAIN DIODE**

Maximum Continuous Drain-Source Diode Forward Current	$I_S$	----	--	--	2	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$	----	--	--	8	A
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0\text{ V}, I_S = 2.0\text{ A}$	--	--	1.5	V
Reverse Recovery Time <sup>(Note 4)</sup>	$t_{rr}$	$V_{GS} = 0\text{ V}, I_S = 2.0\text{ A}$ $di_F / dt = 100\text{ A}/\mu\text{s}$	--	241	--	ns
Reverse Recovery Charge <sup>(Note 4)</sup>	$Q_{rr}$		--	0.8	--	$\mu\text{C}$

Note :

1. Repetitive rating : Pulse width limited by maximum junction temperature
2.  $L=59\text{mH}, I_{AS} = 2\text{ A}, V_{DD} = 50\text{ V}, R_G = 25\ \Omega,$  Starting  $T_J = 25^\circ\text{C}$
3.  $I_{SD} \leq 2\text{ A}, di/dt \leq 200\text{ A}/\mu\text{s}, V_{DD} \leq BV_{DS},$  Starting  $T_J = 25^\circ\text{C}$
4. Pulse Test : Pulse width  $\leq 300\ \mu\text{s},$  Duty Cycle  $\leq 2\%$
5. Essentially Independent of Operating Temperature Typical Characteristics

