TECH PUBLIC
台舟电子

TPM1004NY3-1

N-Channel Enhancement Mode Power MOSFET

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GENERAL FEATURES

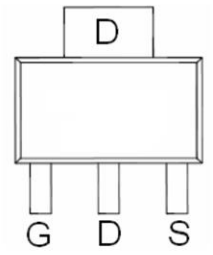
KEY PERFORMANCE PARAMETERS			
PARAMETER		VALUE	UNIT
V_{DS}		100	V
$R_{DS(on)}$ (max)	V_{GS} = 10V	100	mΩ
	V_{GS} = 4.5V	118	
Q_g		9.3	nC

Application

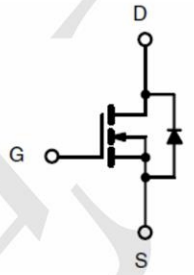
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package and Pin Configuration

SOT223



Circuit diagram



Marking:

"TP"is part number ,fixed
"NZ"is part number ,fixed
"xx "is internal code

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current (Note 1)	T_C = 25°C	I_D	6.5	A
	T_C = 100°C		4.1	
Pulsed Drain Current (Note 2)		I_{DM}	26	A
Total Power Dissipation @ T_C = 25°C		P_{DTOT}	9	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	- 55 to +150	°C

Thermal Characteristic

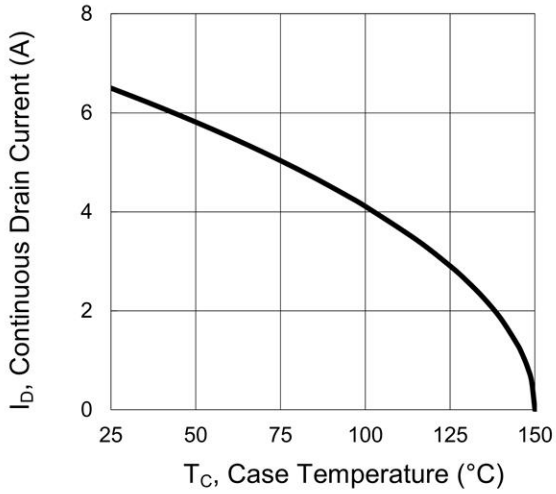
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Case Thermal Resistance	$R_{\theta JC}$	14	°C/W
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	62	°C/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

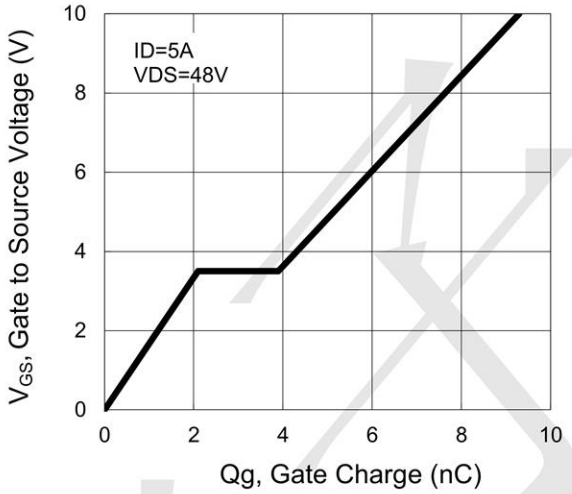
ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER	**CONDITIONS**	**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Static (Note 3)						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	100	--	--	V
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(TH)}$	1.2	1.6	2.5	V
Gate Body Leakage	V_{GS} = ±20V, V_{DS} = 0V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = 100V, V_{GS} = 0V	I_{DSS}	--	--	1	μA
Drain-Source On-State Resistance	V_{GS} = 10V, I_D = 5A	$R_{DS(on)}$	--	80	100	mΩ
	V_{GS} = 4.5V, I_D = 3A		--	85	118	
Dynamic (Note 4)						
Total Gate Charge	V_{DS} = 48V, I_D = 5A, V_{GS} = 10V	Q_g	--	9.3	--	nC
Gate-Source Charge		Q_{gs}	--	2.1	--	
Gate-Drain Charge		Q_{gd}	--	1.8	--	
Input Capacitance	V_{DS} = 50V, V_{GS} = 0V, f = 1.0MHz	C_{iss}	--	1480	--	pF
Output Capacitance		C_{oss}	--	480	--	
Reverse Transfer Capacitance		C_{rss}	--	35	--	
Gate Resistance	f = 1MHz, open drain	R_g	--	1.3	--	Ω
Switching (Note 5)						
Turn-On Delay Time	V_{DD} = 30V, R_{GEN} = 3.3Ω, I_D = 1A, V_{GS} = 10V,	$t_{d(on)}$	--	2.9	--	ns
Turn-On Rise Time		t_r	--	9.5	--	
Turn-Off Delay Time		$t_{d(off)}$	--	18.4	--	
Turn-Off Fall Time		t_f	--	5.3	--	
Source-Drain Diode (Note 3)						
Forward On Voltage	I_S = 3.3A, V_{GS} = 0V	V_{SD}	--	--	1	V
Continuous Drain-Source Diode		I_S	--	--	6.5	A
Pulse Drain-Source Diode		I_{SM}	--	--	26	A

Typical Electrical and Thermal Characteristics

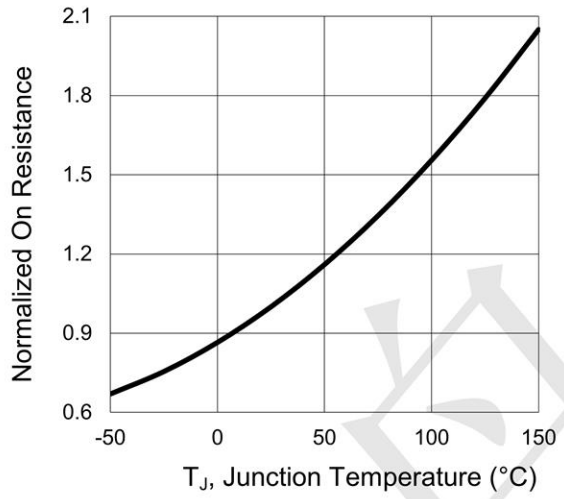
Continuous Drain Current vs. T_C



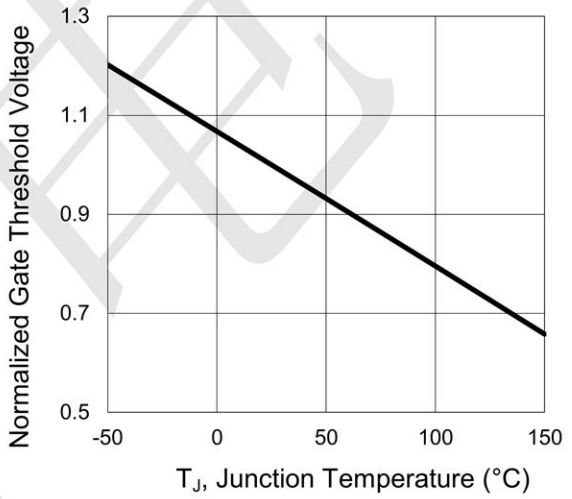
Gate Charge



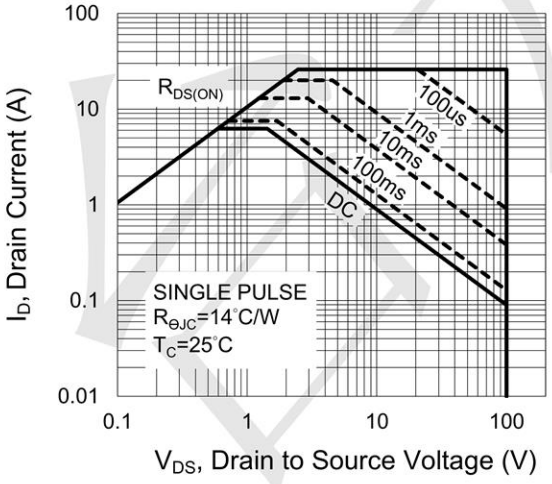
On-Resistance vs. Junction Temperature



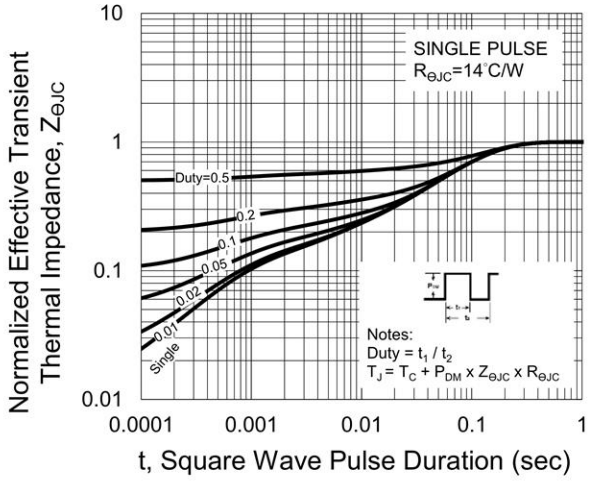
Threshold Voltage vs. Junction Temperature



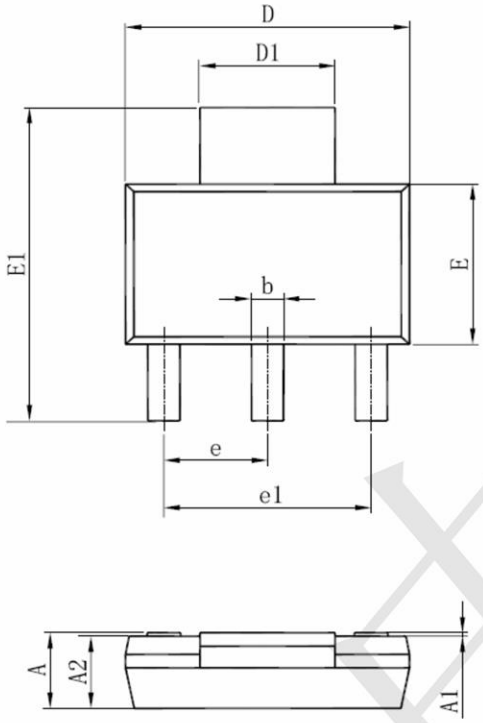
Maximum Safe Operating Area



Normalized Thermal Transient Impedance Curve



SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°