TECH PUBLIC
台舟电子

TPM40V5NS3

40V N-Channel MOSFET

www.sot23.com.tw

General Features

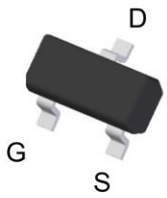
KEY PERFORMANCE PARAMETERS			
PARAMETER		VALUE	UNIT
V_{DS}		40	V
$R_{DS(on)}$ (max)	V_{GS} = 10V	45	mΩ
	V_{GS} = 4.5V	62.5	

Application

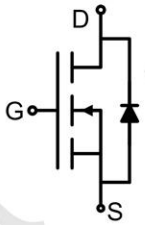
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package and Pin Configuration

SOT23



Circuit diagram



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}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Note 1)	I_D	3.9	A
Pulsed Drain Current (Note 2)	I_{DM}	16	A
Total Power Dissipation @ T_A = 25°C	P_{DTOT}	1.25	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	°C

Thermal Characteristic

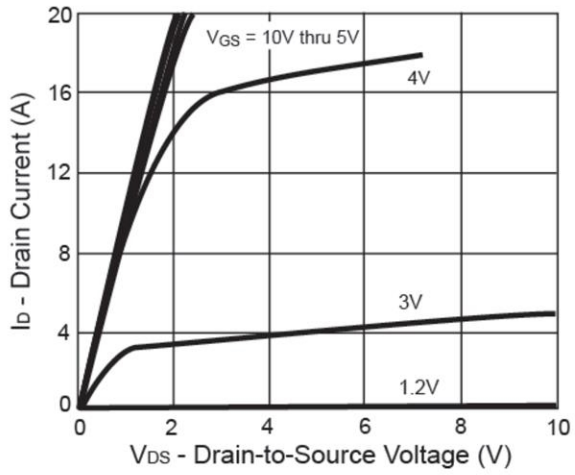
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Case Thermal Resistance	$R_{\Theta JC}$	50	°C/W
Junction to Ambient Thermal Resistance	$R_{\Theta JA}$	100	°C/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

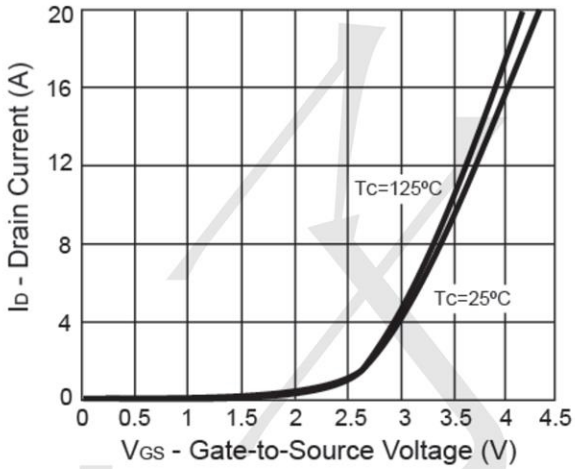
ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER	**CONDITIONS**	**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Static (Note 3)						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	40	--	--	V
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(TH)}$	1	--	3	V
Gate Body Leakage	V_{GS} = ±20V, V_{DS} = 0V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = 32V, V_{GS} = 0V	I_{DSS}	--	--	1.0	μA
Drain-Source On-State Resistance	V_{GS} = 10V, I_D = 3.9A	$R_{DS(on)}$	--	36	45	mΩ
	V_{GS} = 4.5V, I_D = 3.5A			50	62.5	
Dynamic (Note 4)						
Total Gate Charge	V_{DS} = 20V, I_D = 3.9A, V_{GS} = 10V	Q_g	--	10	--	nC
Gate-Source Charge		Q_{gs}	--	1.6	--	
Gate-Drain Charge		Q_{gd}	--	2.1	--	
Input Capacitance	V_{DS} = 20V, V_{GS} = 0V, f = 1.0MHz	C_{iss}	--	540	--	pF
Output Capacitance		C_{oss}	--	80	--	
Reverse Transfer Capacitance		C_{rss}	--	45	--	
Switching (Note 5)						
Turn-On Delay Time	V_{DD} = 20V, R_L = 20Ω, I_D = 1A, V_{GEN} = 10V, R_G = 6Ω	$t_{d(on)}$	--	5	--	ns
Turn-On Rise Time		t_r	--	12	--	
Turn-Off Delay Time		$t_{d(off)}$	--	20	--	
Turn-Off Fall Time		t_f	--	15	--	
Source-Drain Diode (Note 3)						
Forward On Voltage	I_S = 1.25A, V_{GS} = 0V	V_{SD}	--	0.8	1.2	V

Typical Electrical and Thermal Characteristics (Curves)

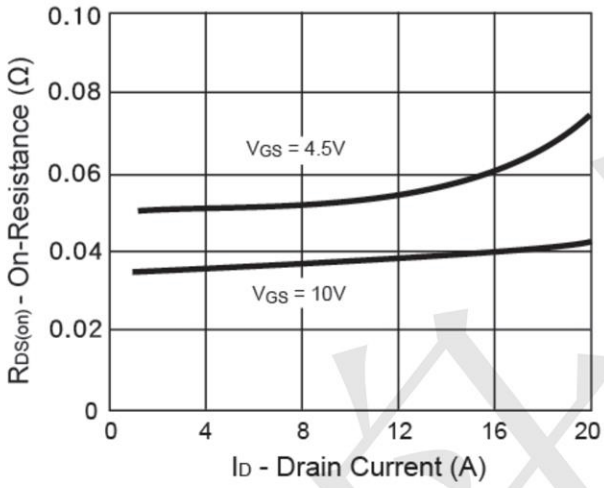
Output Characteristics



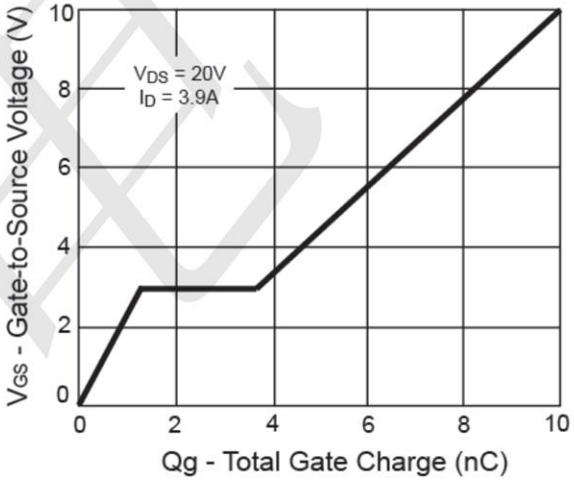
Transfer Characteristics



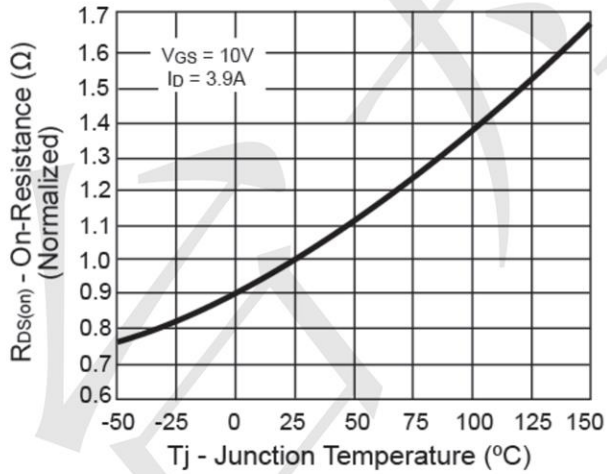
On-Resistance vs. Drain Current



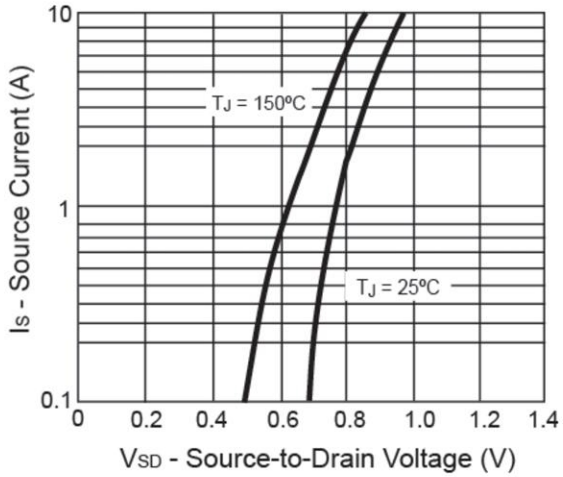
Gate Charge



On-Resistance vs. Junction Temperature

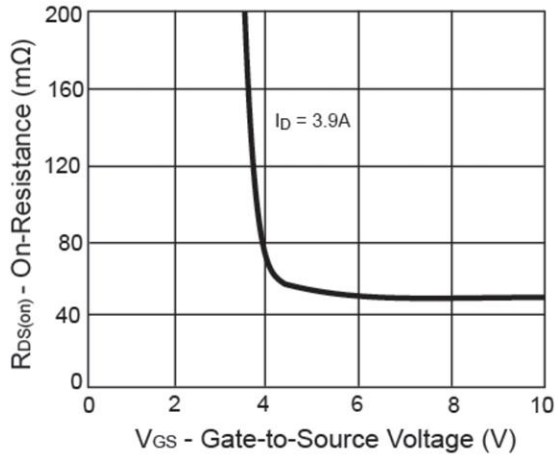


Source-Drain Diode Forward Voltage

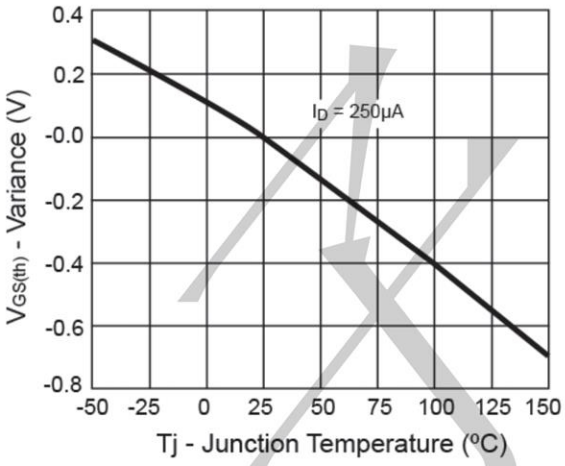


Typical Electrical and Thermal Characteristics (Curves)

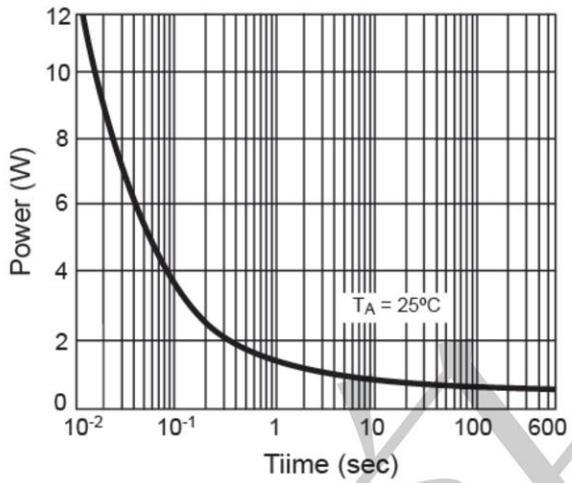
On-Resistance vs. Gate-Source Voltage



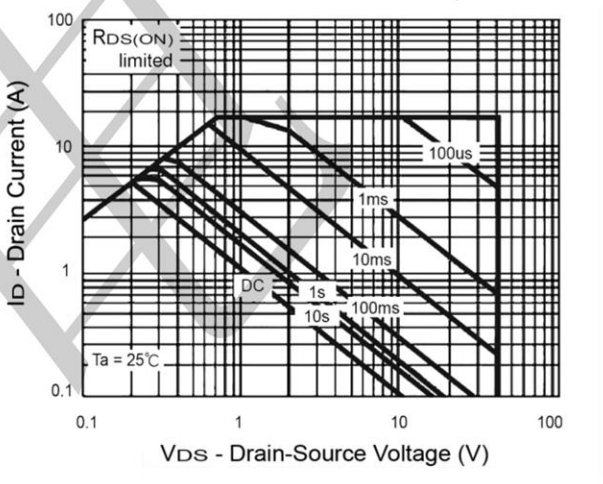
Threshold Voltage



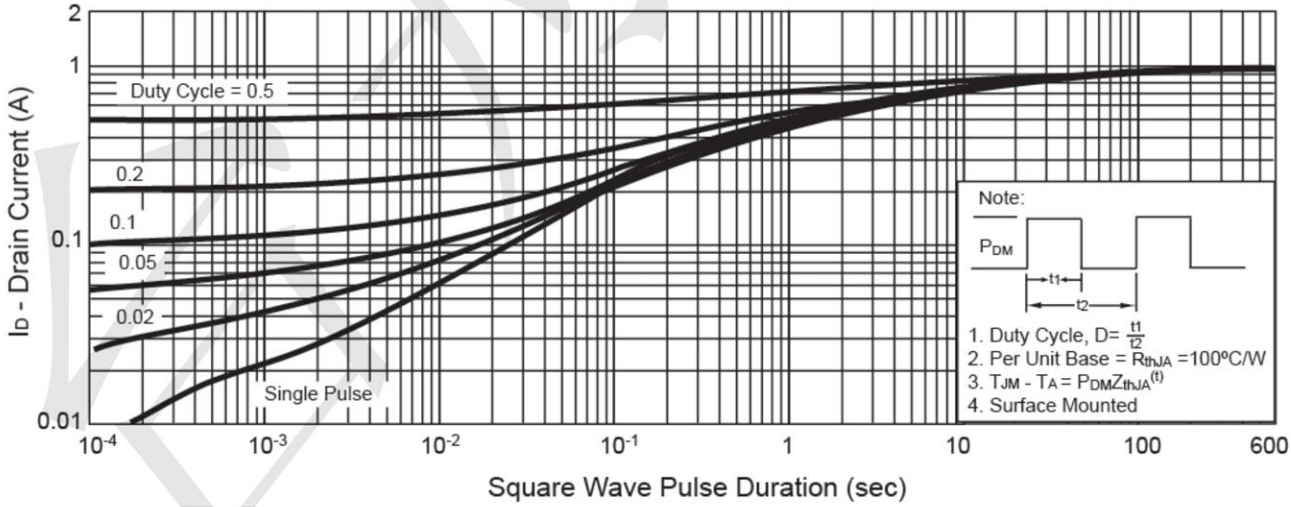
Single Pulse Power



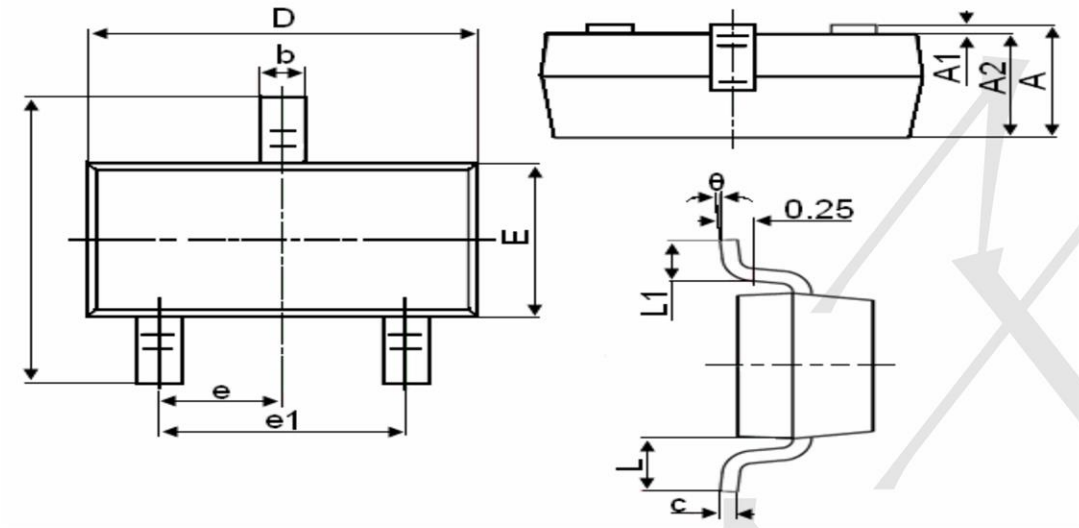
Maximum Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient

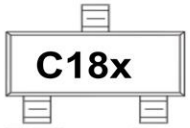


Package Outline Dimensions (SOT-23)



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Marking:



"C18" is Part number,fixed
"x"is internal code