TECH PUBLIC
台舟电子

TPM126S3

600V N-Channel Depletion-ModeMOSFET

www.sot23.com.tw

General Features

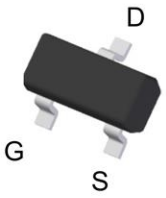
- 600V/16mA,$R_{DS(ON)}$=700Ω@V_{GS}=10V
- 600V/3mA,$R_{DS(ON)}$=700Ω@V_{GS}=4.5V
- Depletion-mode (Normally-on)
- Improved ESD ability Fast switching
- Improved dv/dt capability
- SOT-23 package design

Application

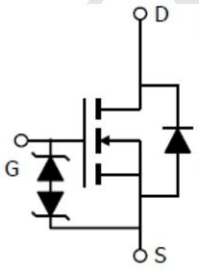
- Desk PC Power Supply
- AC adapter
- LCD TC Power Supply

Package and Pin Configuration

SOT23



Circuit diagram



Marking :F5xxx

F5= is part number,fixed
xxx= is internal code

Pin Define

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	600	V
Gate –Source Voltage		V_{GSS}	20	V
Continuous Drain Current(T_J=150℃)	T_c=25℃	I_D	30	mA
	T_c=100℃		27	
Pulsed Drain Current		I_{DM}	120	mA
Continuous Source Current		I_S	30	mA
Power Dissipation	T_A=25℃	P_D	0.5	W
Power Dissipation Derate	T_A=25℃		0.004	W/℃
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Case		$R_{\theta JC}$	50	℃/W
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	250	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=-5V,I_D=250uA	600			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=3V,I_D=8uA	-2.7		-1.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}= 20V			10	uA
Drain-Source Leakage Current	$I_{D(off)}$	V_{DS}=600V,V_{GS}=-5V			0.1	uA
On-state drain current	I_{DSS}	V_{GS}=0V, V_{DS}=25V	12			mA
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=16mA		310	700	Ω
		V_{GS}=0V,I_D=3mA		330	700	
Diode Forward Voltage	V_{SD}	I_S=16mA,V_{GS}=-5V		0.85	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=400V,V_{GS}=-5V to 5V			1.8	nC
Gate-Source Charge	Q_{gs}	I_D≡0.01A			0.75	
Gate-Drain Charge	Q_{gd}	(Note 1,2)			0.56	
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=-5V f=1MHz			99	pF
Output Capacitance	C_{oss}				9.1	
Reverse Transfer Capacitance	C_{rss}				5	
Turn-On Time	$t_{d(on)}$	V_{DD}=300V I_D≡0.01A,V_{GEN}=-5….7V R_G=6Ω (Note 1,2)			18	ns
	t_r				90	
Turn-Off Time	$t_{d(off)}$				93	
	t_f				210	

Notes:

1. Pulse Test: Pulse width ≤300μs,Duty cycle≤2%
2. Essentially independent of operating temperature

Typical Electrical and Thermal Characteristics (Curves)

Figure 1. On-Region Characteristics

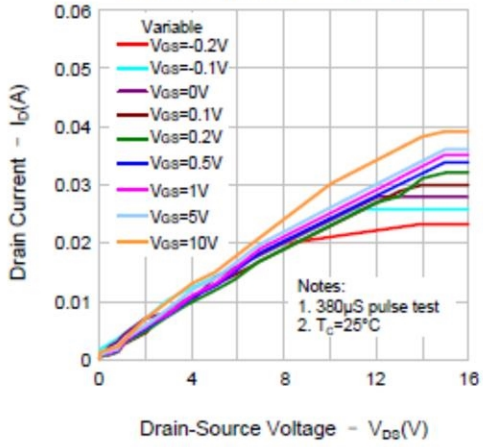


Figure 2. Transfer Characteristics

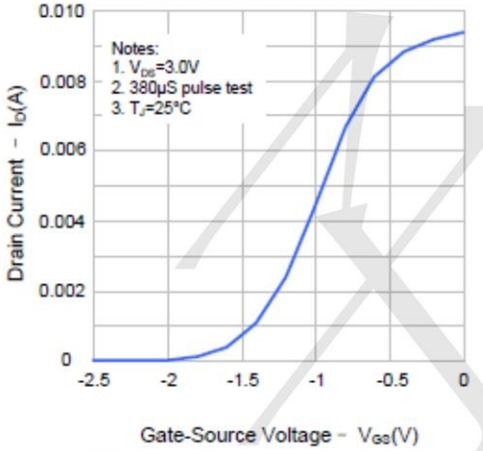


Figure 3. On-Resitance Variation vs. Drain Current and Gate Voltage

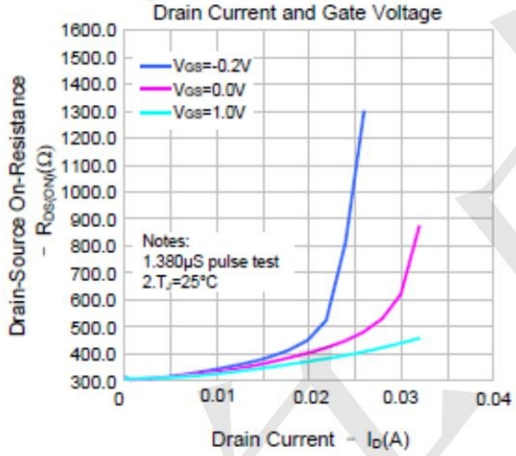


Figure 4. Forward characteristics of reverse diode

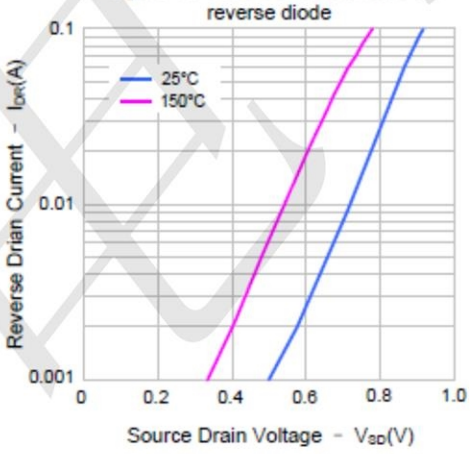


Figure 5. Breakdown Voltage Variation vs. Temperature

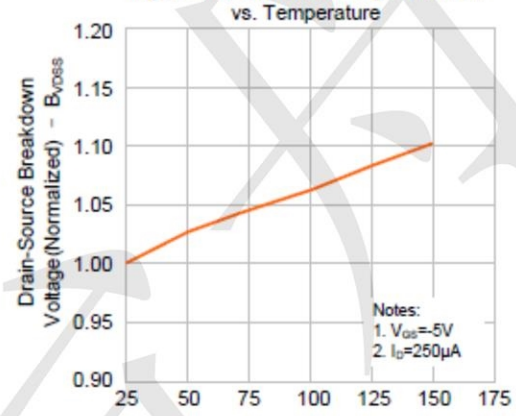
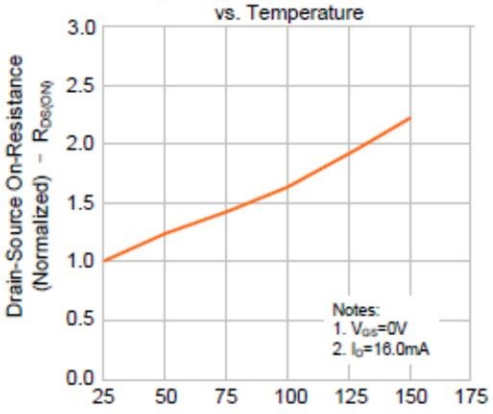


Figure 6. On-resistance Variation vs. Temperature



Typical Electrical and Thermal Characteristics (Curves)

Figure 7. Gate Threshold Voltage vs.Temperature

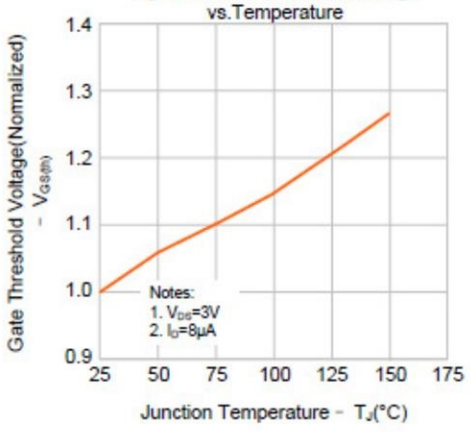


Figure 8. Typ. Forward Transconductance

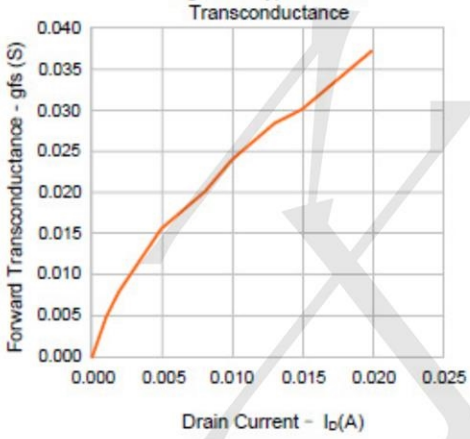


Figure 9. Power Dissipation vs. Case Temperature

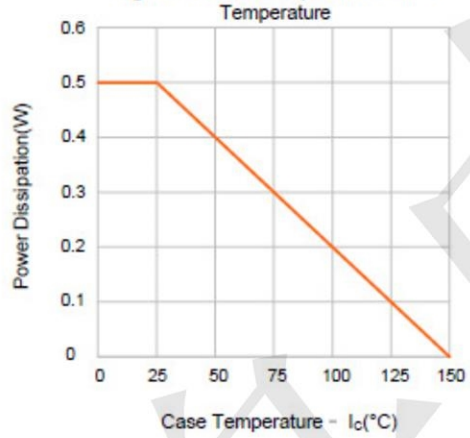


Figure 10. Max. Safe Operating Area

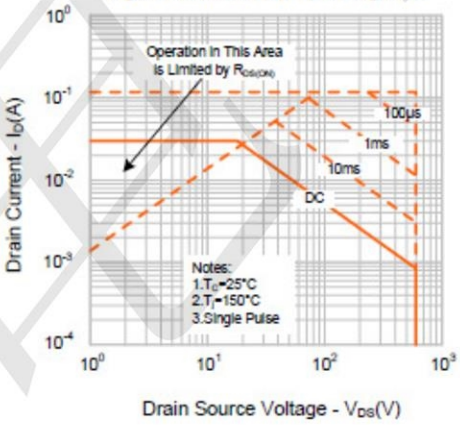
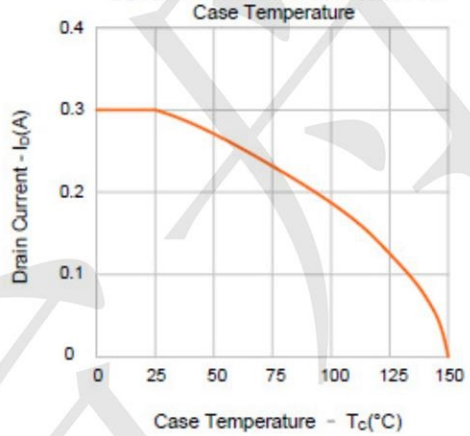
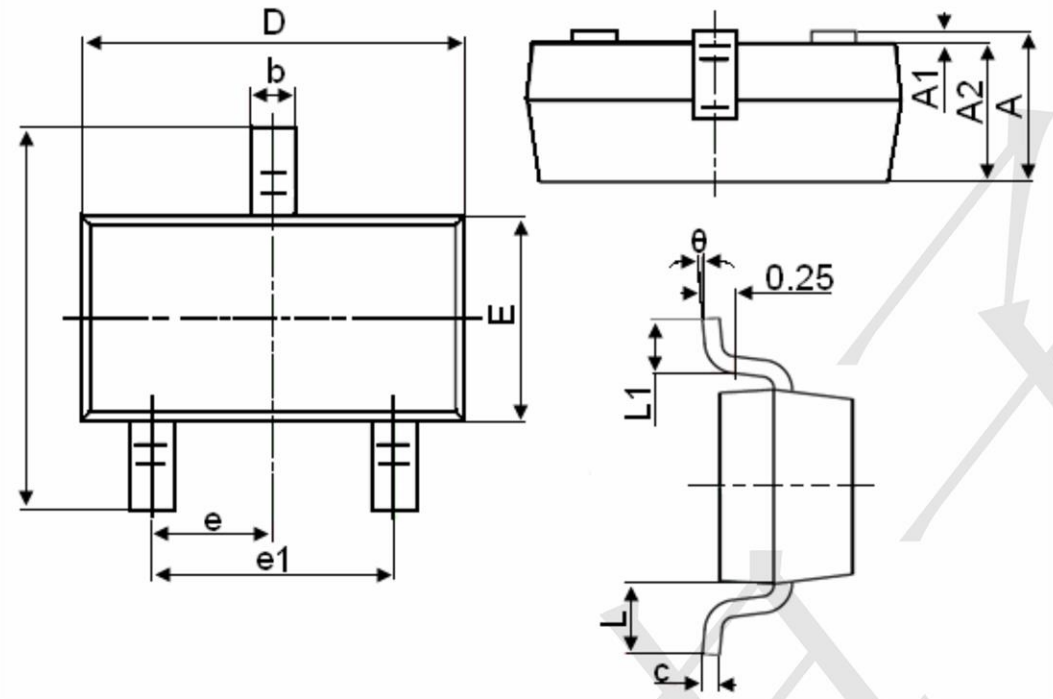


Figure 11. Maximum Drain Current vs. Case Temperature



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°

Notes

1. All dimensions are in millimeters.
2. Tolerance ±0.10mm (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.