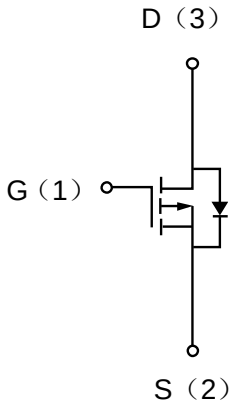
Description

The enhancement mode MOS is extremely high density cell and low on-resistance. This PPM3T18V6 uses advanced trench technology to provide excellent $R_{DS(on)}$, low gate voltages as low as 2.5V. This device is suitable for use as a load switching application and a wide variety of other applications.



MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
>-18	<20 @ V_{GS}=-4.5V	-6
	<28 @ V_{GS}=-2.5V	
	<40 @ V_{GS}=-1.8V	

Absolute maximum rating@25℃

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-18	V
Gate-Source Voltage		V_{GS}	±12	V
Drain Current	Continuous	I_D	-6	A
	Pulsed (Note1)	I_{DM}	-24	A
Maximum Power Dissipation		P_D	1.4	W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	℃

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resisitance, Junction-to-Ambient (Note2)	$R_{\theta JA}$	90	℃/W

Electrical characteristics per line@25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA,V_{GS}=0V	-18	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-16V,V_{GS}=0V	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V	-	-	±100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.4	-0.7	-1.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-6A	-	17.5	20	mΩ
		V_{GS}=-2.5V, I_D=-5A	-	22	28	
		V_{GS}=-1.8V, I_D=-2.5A	-	30	40	
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-8A		33		S
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note3)	V_{SD}	V_{GS}=0V,I_S=-1A	-	-	-1.2	V
Diode Forward Current (Note2)	I_S		-	-	-3.5	A
DYNAMIC CHARACTERISTICS (Note 4)						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS}=-6V, F=1MHz	-	1370		pF
Output Capacitance	C_{OSS}		-	350		pF
Reverse Transfer Capacitance	C_{RSS}		-	258		pF
SWITCHING PARAMETERS (Note 4)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-6V, V_{GS}=-4.5V, R_L=0.75Ω, R_{GEN}=3Ω	-	11	-	ns
Turn-On Rise Time	t_r		-	25	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	70	-	ns
Turn-Off Fall Time	t_f		-	42	-	ns
Total Gate Charge	Q_g	V_{DS}=-6V,I_D=-8A,V_{GS}=-4.5V	-	13	-	nc
Gate-Source Charge	Q_{gs}		-	2	-	nc
Gate-Drain Charge	Q_{gd}		-	3	-	nc

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, t≤10sec.

3.Pulse Test: Pulse Width ≤300μS, Duty Cycle≤2%.

4.Guaranteed by design, not subject to production.

Typical Characteristics

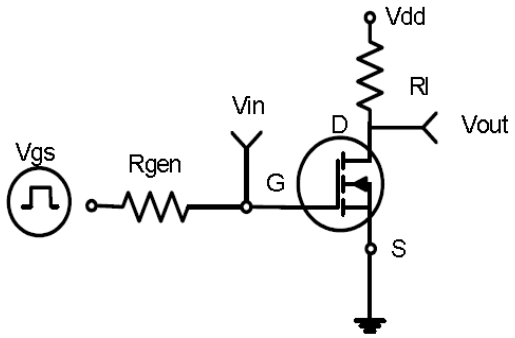


Fig 1. Switching Test Circuit

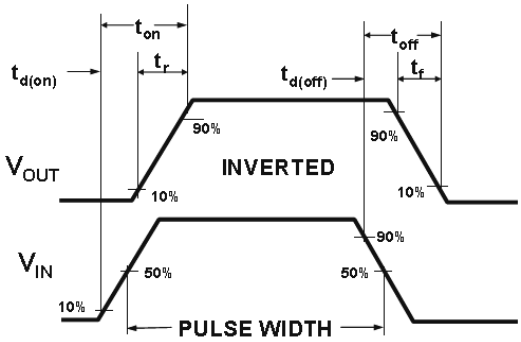


Fig 2. Switching Waveforms

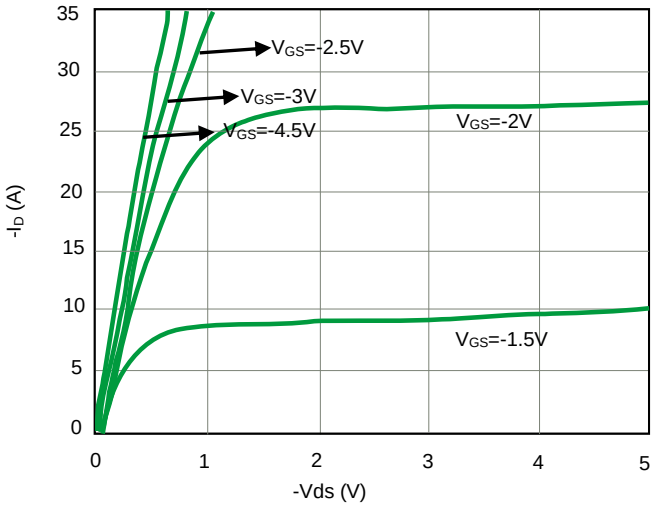


Fig 3. On-region Characteristics

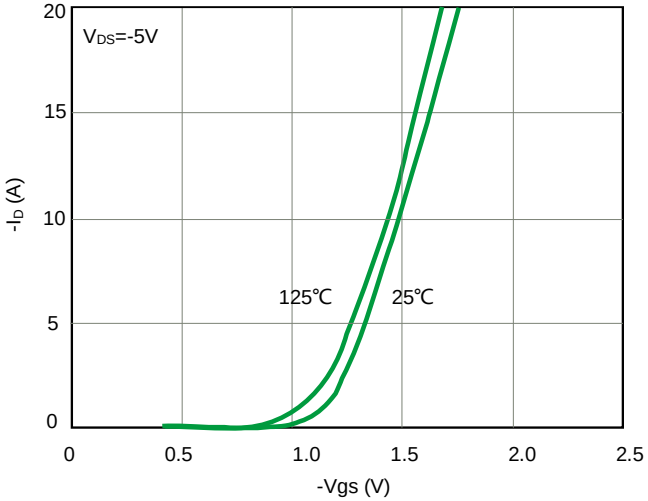


Fig4. Transfer Characteristics

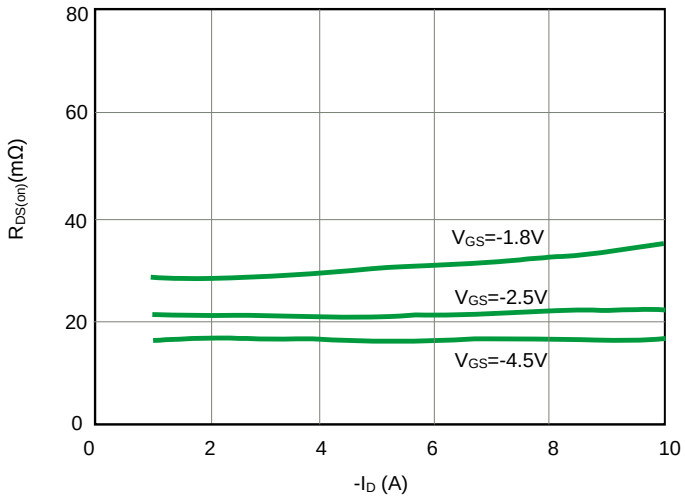


Fig 5. On-Resistance vs.Drain Current and Gate Voltage

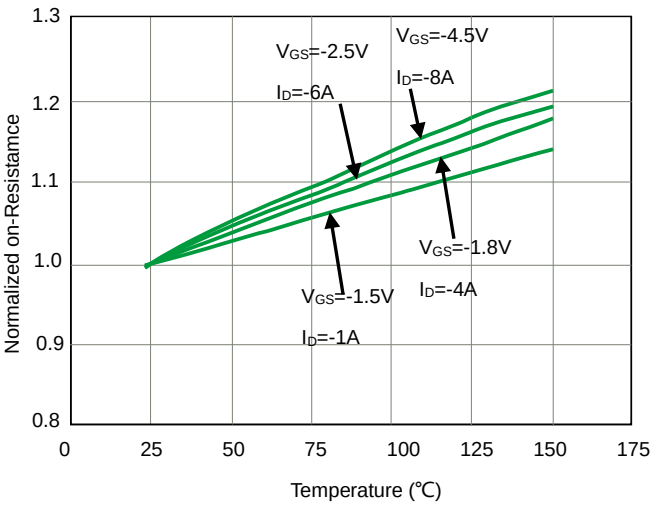


Fig 6. On-Resistance vs. Junction Temperature

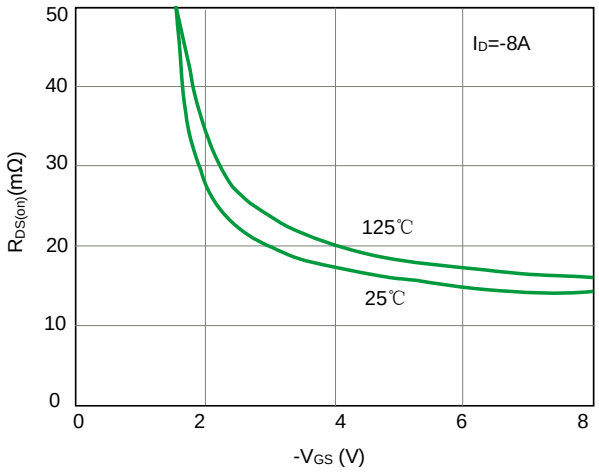


Fig 7. On Resistance vs. Gate-Source Voltage

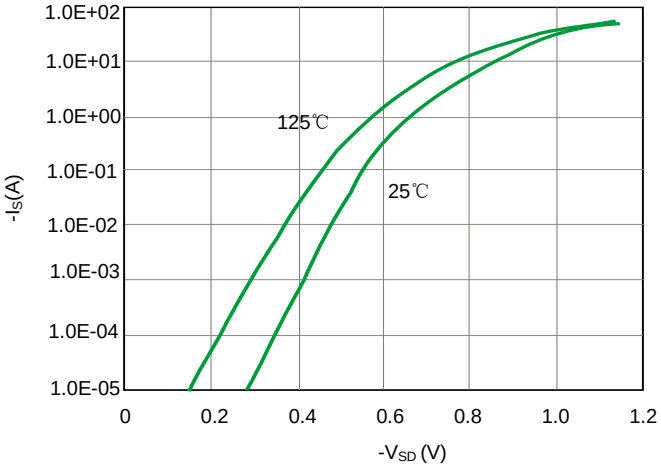


Fig 8. Body-Diode Characteristics

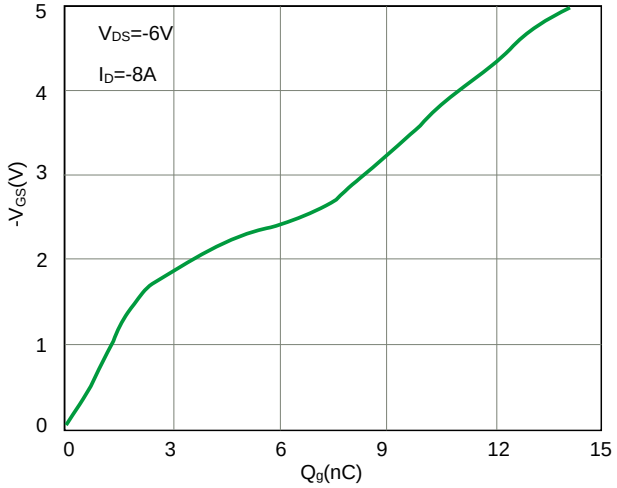


Fig 9. Gate Charge Characteristics

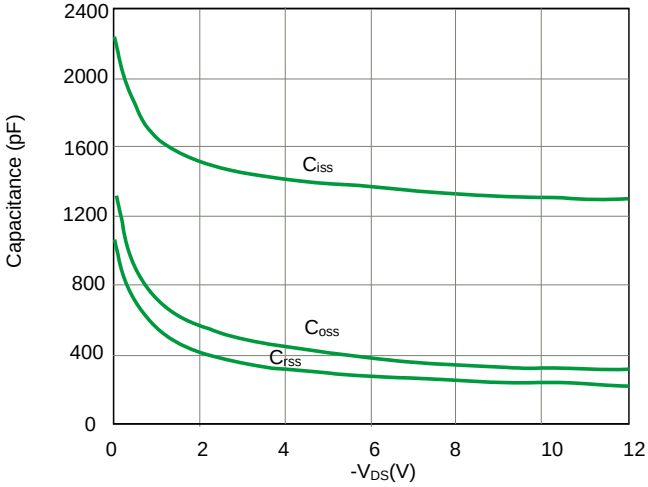


Fig 10. Capacitance Characteristics

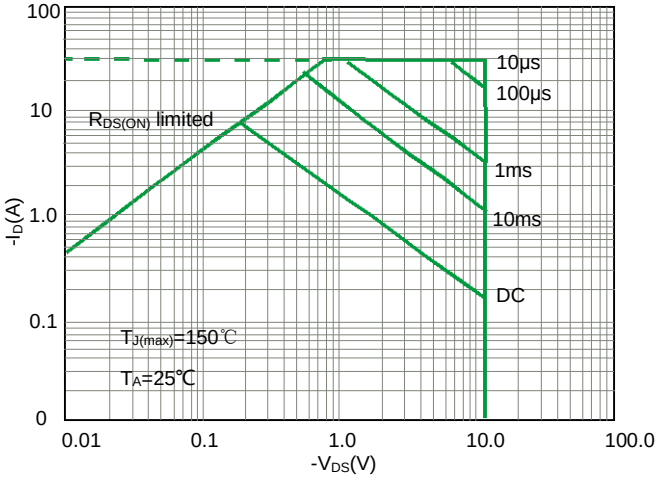


Fig 11. Maximum Forward Biased Safe Operating Area

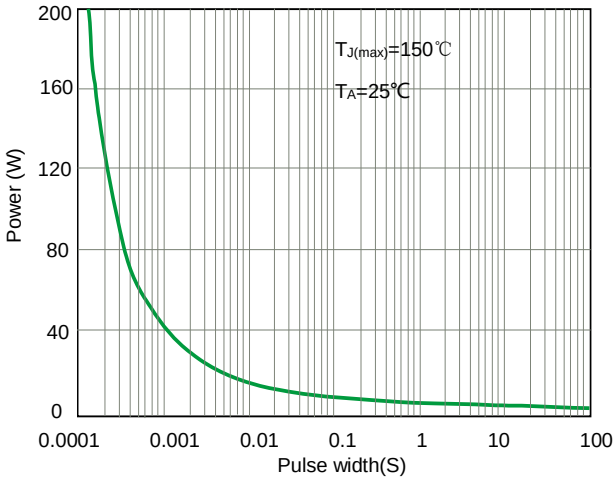


Fig 12. Single Pulse Power Rating Junction to Ambient

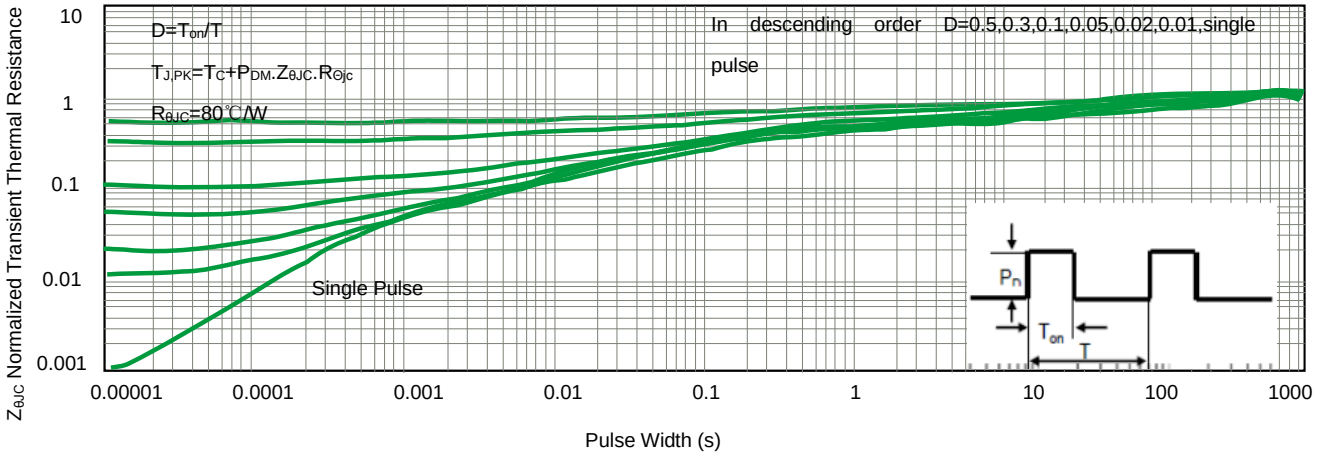
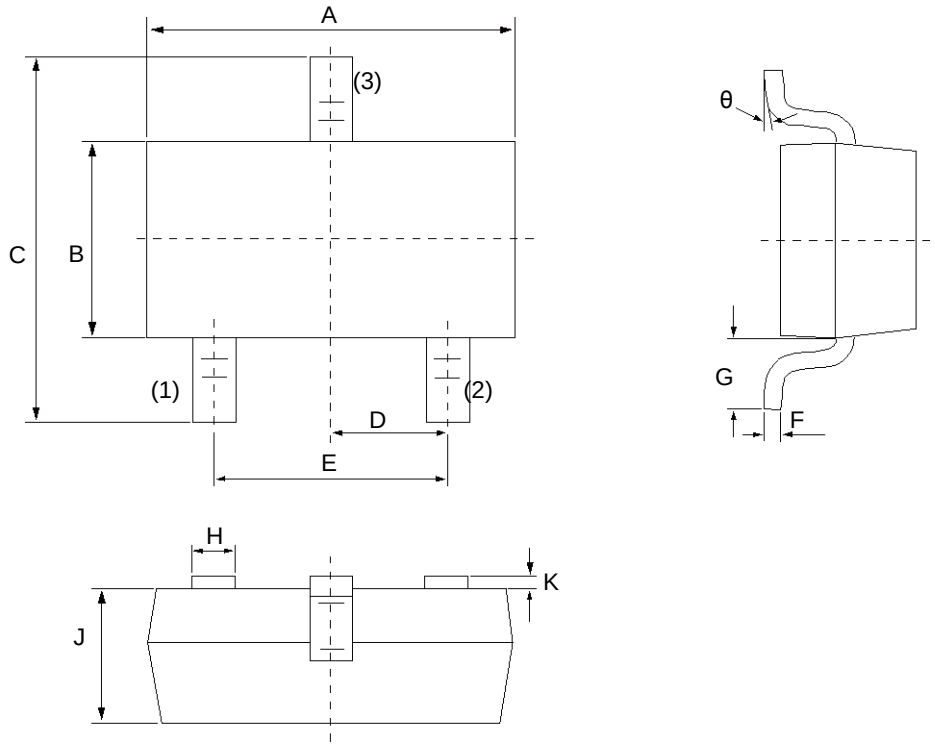


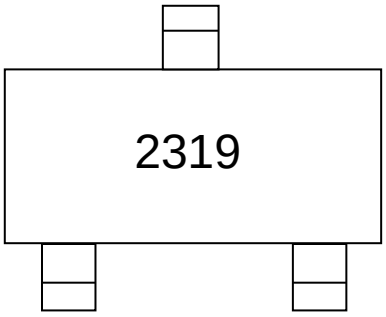
Fig 13. Normalized Maximum Transient Thermal Impedance

Product dimension(SOT-23)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.82	3.02	0.111	0.119
B	1.50	1.70	0.059	0.067
C	2.65	2.95	0.104	0.116
D	0.950(BSC)		0.037(BSC)	
E	1.80	2.00	0.071	0.079
F	0.10	0.20	0.004	0.008
G	0.55(REF)		0.022(REF)	
H	0.30	0.50	0.012	0.020
J	1.05	1.15	0.041	0.045
K	0.00	0.10	0.000	0.004
θ	0°	8°	0°	8°

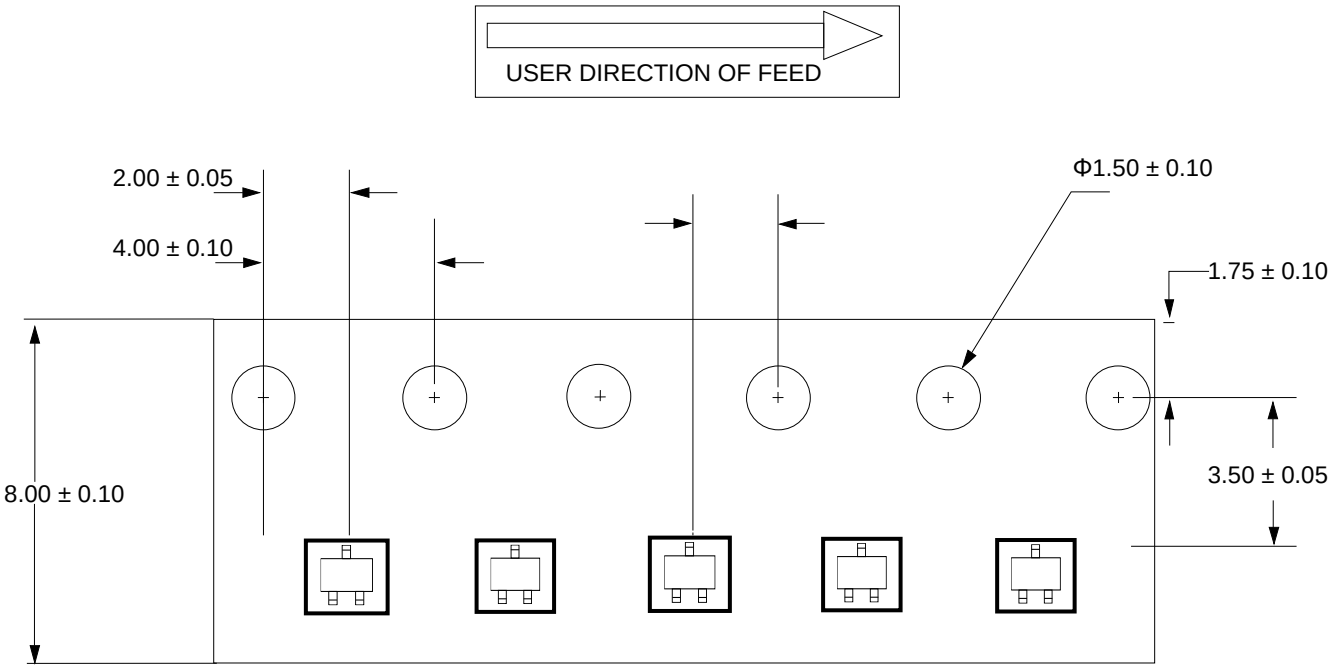
Marking information



Ordering information

Device	Package	Reel	MPQ
PPM3T18V6	SOT-23 (Pb-Free)	7"	3000 / Tape & Reel

Load with information



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