Prisemi®

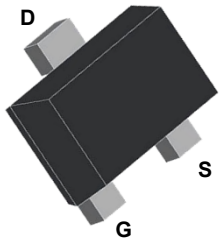
PPM723T201E0L

P-Channel MOSFET

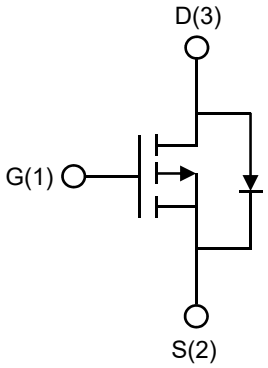
Description

The PPM723T201E0L uses split gate trench technology to provide excellent $R_{DS(ON)}$ low gate charge. This device is suitable for power management and high efficiency applications at high switching frequencies applications.

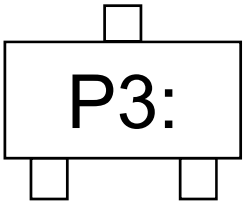
MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)(Typ)	I_D(A)
-20	345 @ V_{GS} = -4.5V	-0.8
	412 @ V_{GS} = -2.5V	
ESD	HBM	
	Pass 3.5kV	



SOT-723
(Top View)



Circuit Diagram



Marking (Top View)

Feature

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Applications

- PWM applications
- Load switch
- Power management
- DC-DC Converters
- Wireless Chargers

Absolute maximum rating@25℃

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±10	V
Drain Current-Continuous[1]	T_C=25℃	I_D	-0.8	A
	T_C=100℃		-0.5	
Pulsed Drain Current[2]		I_{DM}	-3.5	A
Total Power Dissipation[3]		P_D	0.5	W
Thermal Resistance , Junction-to-Case[4]		$R_{\theta JC}$	53.6	℃/W
Thermal Resistance , Junction-to-Ambient[4]		$R_{\theta JA}$	249.8	℃/W
Junction and Storage Temperature Range		T_J,T_{STG}	-55~+150	℃

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V,I_D = -250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20V,V_{GS} = 0V	-	-	-1.0	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±10V,V_{DS} = 0V	-	-	±10	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS},I_D = -250μA	-0.45	-0.56	-0.9	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS} = -4.5V,I_D = -0.7A	-	345	500	mΩ
		V_{GS} = -2.5V,I_D = -0.3A	-	412	700	
		V_{GS} = -1.8V,I_D = -0.1A	-	492	1000	
Dynamic Characteristics[5)]						
Input Capacitance	C_{lss}	V_{DS} = -10V,V_{GS} = 0V, f = 1.0MHz	-	12.6	-	pF
Output Capacitance	C_{oss}		-	15.7	-	
Reverse Transfer Capacitance	C_{rss}		-	3.8	-	
Switching Characteristics[5)]						
Turn-on Delay Time	$t_{d(on)}$	V_{DS} = -6V, V_{GS} = -4.5V, R_G = 50Ω, R_L = 12Ω, I_D = -0.45A	-	885	-	ns
Turn-on Rise Time	t_r		-	2313	-	
Turn-Off Delay Time	$t_{d(off)}$		-	9463	-	
Turn-Off Fall Time	t_f		-	6613	-	
Total Gate Charge	Q_g	V_{DS} = -10V, V_{GS} = -4.5V, I_D = -0.45A	-	0.86	-	nC
Gate-Source Charge	Q_{gs}		-	0.21	-	
Gate-Drain Charge	Q_{gd}		-	0.14	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V,I_S = -0.15A	-	-0.81	-1.2	V

Notes:
1. Computed continuous current assumes the condition of T_{J_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. Repetitive Rating: Pulse width limited by maximum junction temperature(T_{J_Max}=150℃).
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.
5. Guaranteed by design, not subject to production.

Typical Characteristics

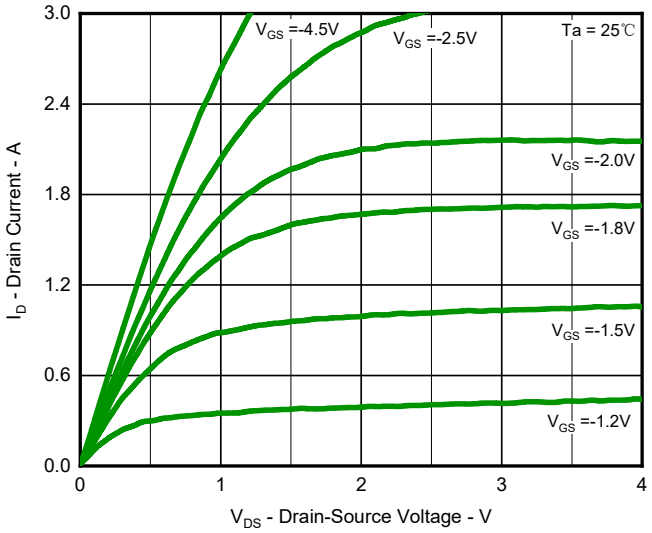


Fig.1 Output Characteristics

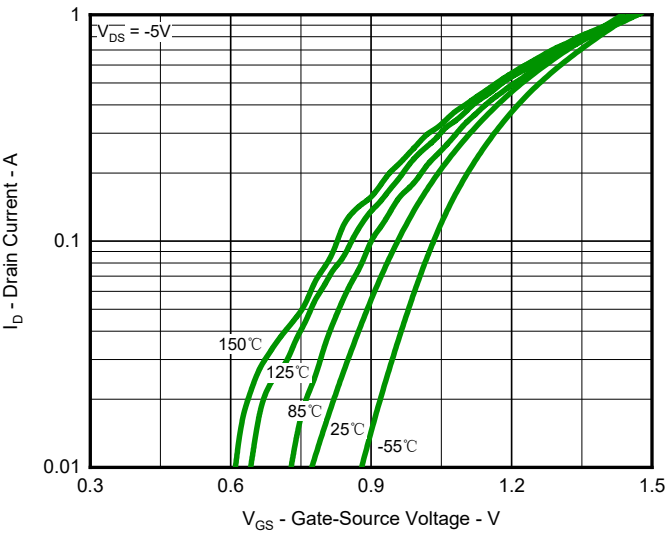


Fig.2 Typical Transfer Characteristic

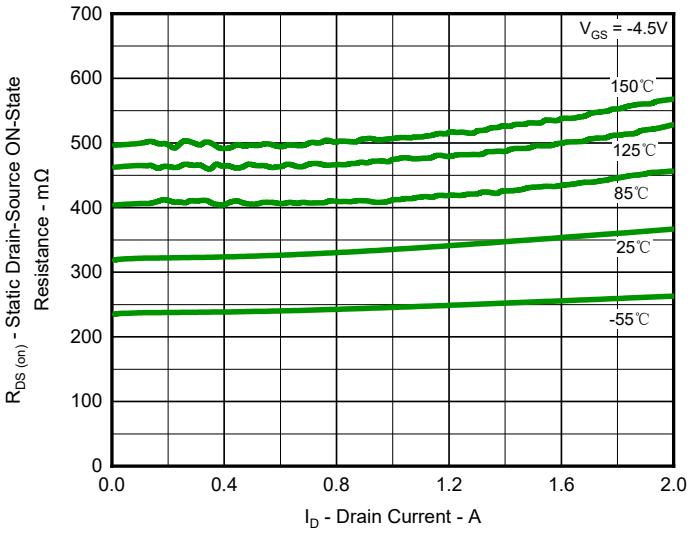


Fig.3 Typical On-Resistance vs Drain Current and Temperature

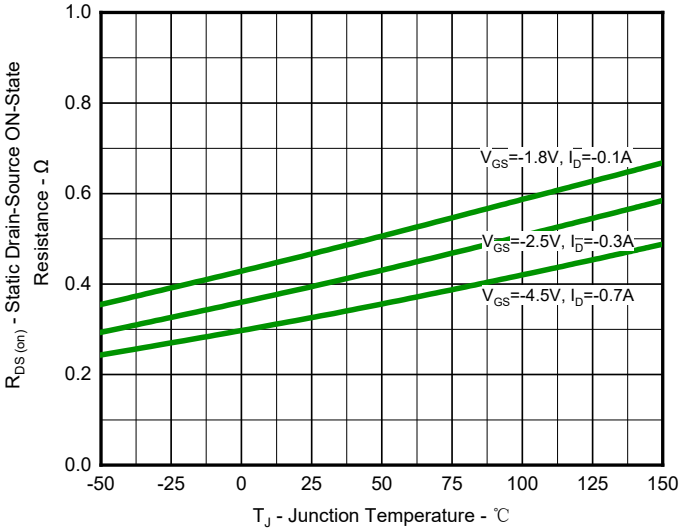


Fig.4 On-Resistance Variation with Temperature

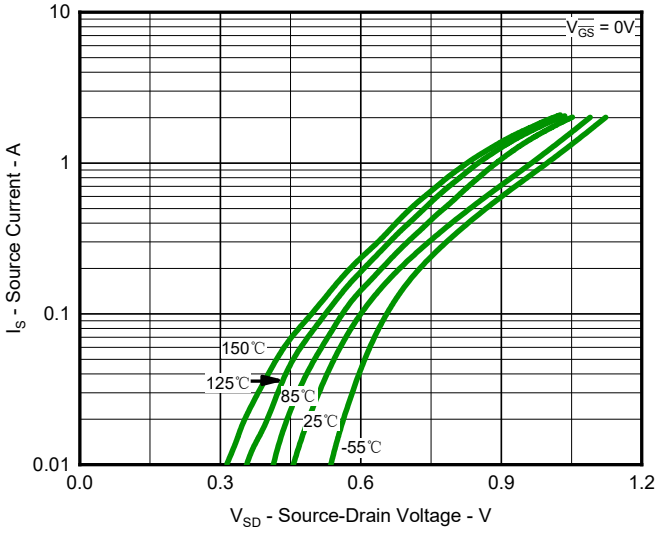


Fig.5 Diode Forward Voltage vs. Current

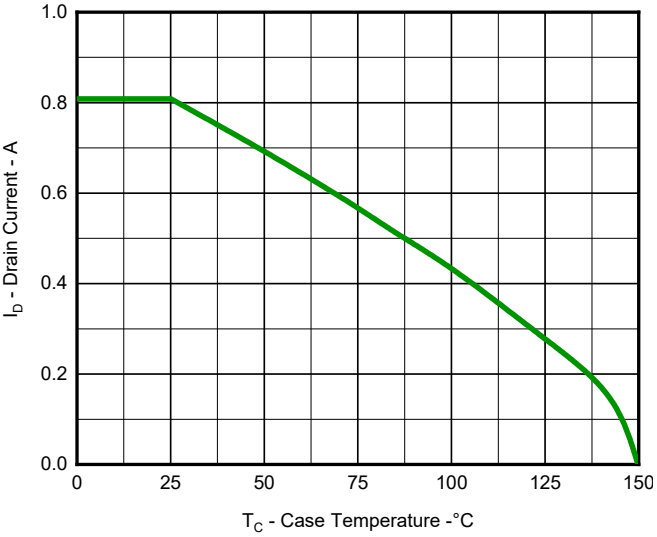


Fig.6 Maximum Drain Current vs. Case Temperature

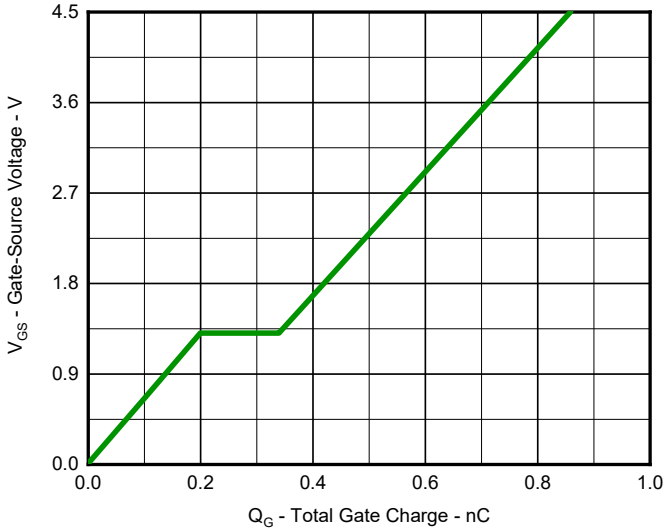


Fig.7 Gate Charge Characteristics

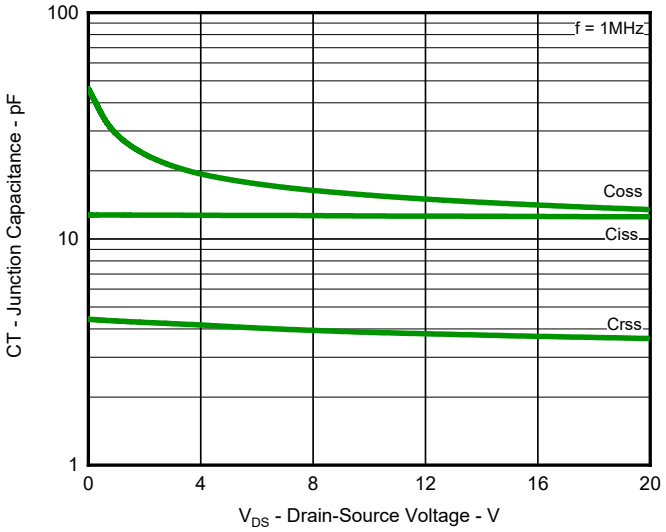


Fig.8 Typical Junction Capacitance

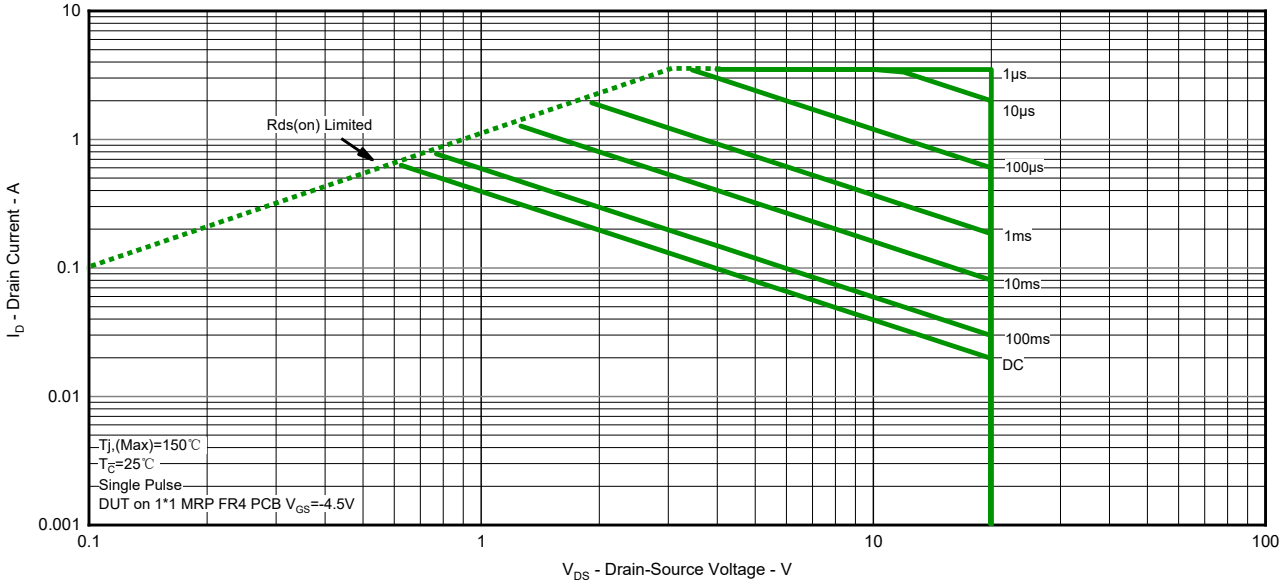


Fig.9 Safe Operation Area

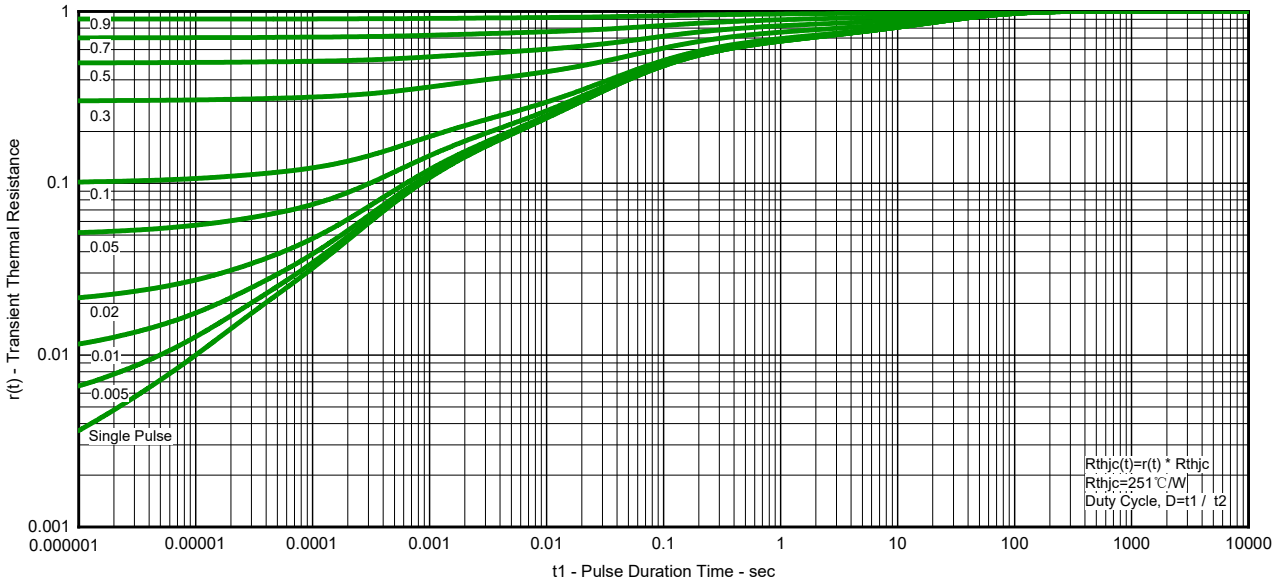
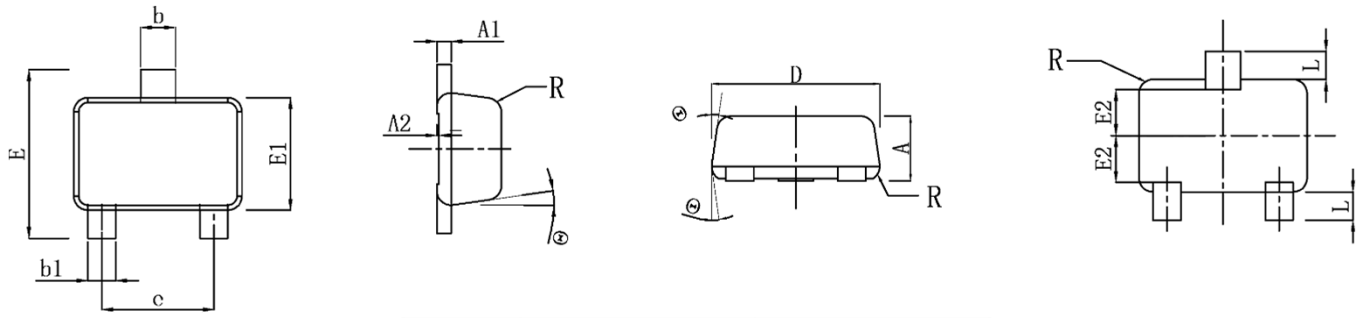
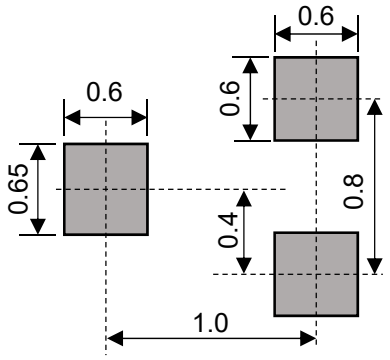


Fig.10 Transient Thermal Resistance

Product Dimension (SOT-723)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A1	0.075	0.125	0.003	0.005
A2	0.00	0.05	0.000	0.002
A	0.43	0.49	0.017	0.019
b	0.22	0.28	0.009	0.011
b1	0.15	0.25	0.006	0.010
L	0.15	0.25	0.006	0.010
D	1.15	1.25	0.045	0.049
E	1.15	1.25	0.045	0.049
E1	0.75	0.85	0.030	0.033
E2	0.33 Ref.		0.013 Ref.	
e	0.80 Ref.		0.031 Ref.	
R	0.10 Ref.		0.004 Ref.	
R1	0.16 Ref.		0.006 Ref.	
θ	6°	10°	6°	10°



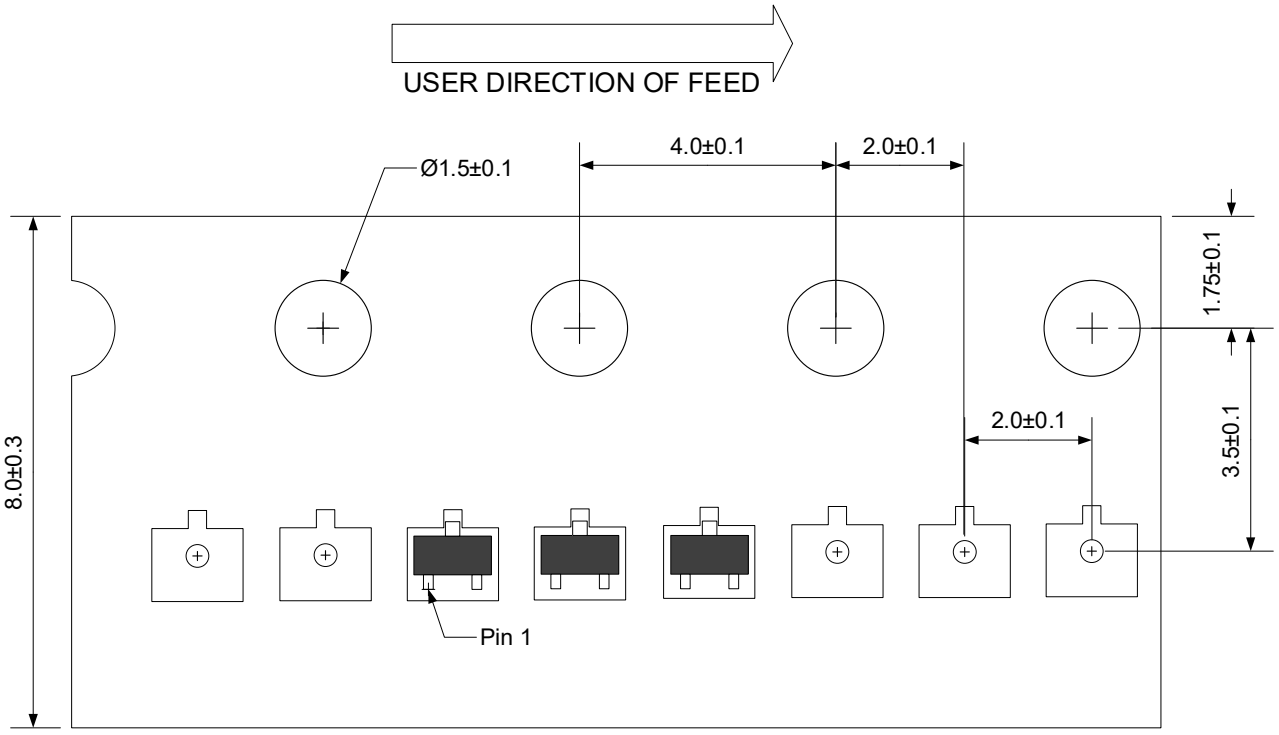
Suggested PCB Layout

Unit: mm

Ordering information

Device	Package	Reel	Shipping
PPM723T201E0L	SOT-723	7"	10000 / Tape & Reel

Load with information



Unit:mm

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