

### Features

- $V_{DS} = -16V, I_D = -3.8A$   
 $R_{DS(ON)} < 52m\Omega @ V_{GS} = -4.5V$   
 $R_{DS(ON)} < 78m\Omega @ V_{GS} = -2.5V$
- SOT-23 Package

### Applications

- Battery protection
- Load switch
- Power management

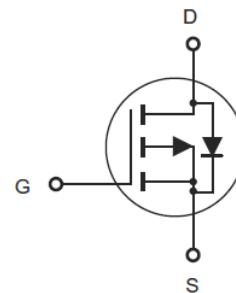


### Ordering Information

Part Number	Qty per Reel	Reel Size
TPM6401S3	3000	7"



SOT-23



**Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-16	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	
Continuous Drain Current	$I_D$	-3.8	A
Power Dissipation	$P_D$	1	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	125	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-50 ~ +150	

**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

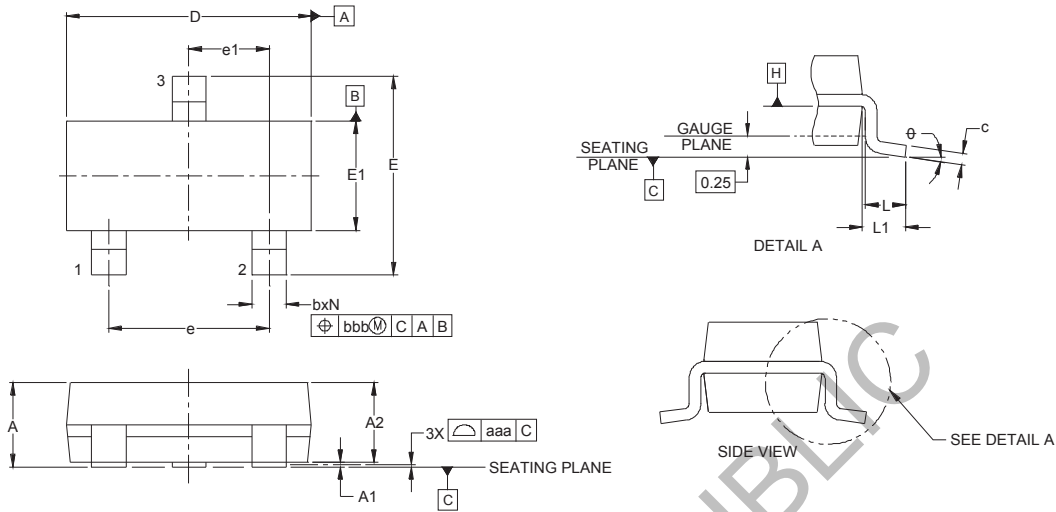
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-16	-18		
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=-15V, V_{GS}=0V$			-1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$			$\pm 100$	nA
Gate threshold voltage*	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.7	-1.0	V
Drain-source on-resistance*	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-3.8A$		40	52	m $\Omega$
		$V_{GS}=-2.5V, I_D=-3.0A$		52	78	
Forward Transconductance	$g_{FS}$	$V_{DS}=-5V, I_D=-3.8A$	5			s
<b>Dynamic Characteristics **</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, V_{GS}=0V, f=1\text{MHz}$		478		pF
Output Capacitance	$C_{oss}$			81		
Reverse Transfer Capacitance	$C_{rss}$			52		
<b>Switching Characteristics**</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD}=-10V, V_{GS}=-4.5V, R_L=2.8\Omega, I_D=-1A, R_{GEN}=6\Omega$		12		ns
Turn-on rise time	$t_r$			54		
Turn-off delay time	$t_{d(off)}$			15		
Turn-off Fall time	$t_f$			9		
Total Gate Charge	$Q_g$	$V_{DS}=-10V, I_D=-3.8A, V_{GS}=-4.5V$		4.3		nC
Gate-Source Charge	$Q_{gs}$			0.8		
Gate-Drain Charge	$Q_{gd}$			1.1		
<b>Source-Drain Diode characteristics</b>						
Drain-Source Diode Forward Current	$I_S$				-3.8	A
Diode Forward voltage	$V_{SD}$	$V_{GS}=0V, I_S=-3.8A$		-0.8	-1.2	V

Notes:

\*Pulse Test: Pulse Width  $\leq 300\mu A$ , Duty Cycle  $\leq 2\%$ .

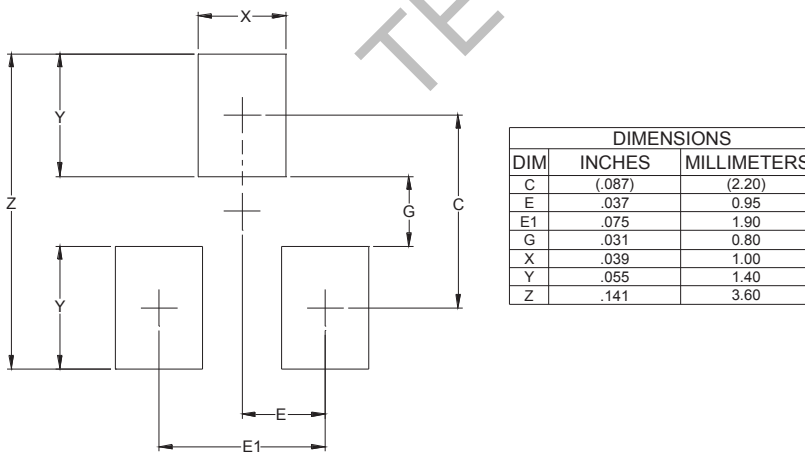
\*\*These parameters have no way to verify.

### Outline Drawing - SOT23



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.044	0.89	-	1.12
A1	.000	-	.004	0.01	-	0.10
A2	.035	.037	.040	0.88	0.95	1.02
b	.012	-	.020	0.30	-	0.51
c	.003	-	.007	0.08	-	0.18
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e				1.90 BSC		
e1				0.95 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1				(0.55)		
N	3			3		
φ	0°	-	8°	0°	-	8°
aaa				0.10		
bbb				0.20		

### Land Pattern - SOT23



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.087)	(2.20)
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60