



## TP0101K vs. TP0101T

**Description:** P-Channel,20-V (D-S) MOSFET, Low Threshold  
**Package:** SOT-23  
**Pin Out:** Identical

**Part Number Replacements:**

TP0101K-T1-E3 Replaces TP0101T-T1-E3  
 TP0101K-T1-E3 Replaces TP0101T-T1

**Summary of Performance:**

The TP0101K is a technology upgrade with ESD protection to the original TP0101T. The ESD protection diodes on the gate increases Gate-Body Leakage; otherwise, there is little variation regarding performance.

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	TP0101K	TP0101T	Unit
Drain-Source Voltage		V <sub>DS</sub>	-20	-20	V
Gate-Source Voltage		V <sub>GS</sub>	±8	±8	
Continuous Drain Current	T <sub>A</sub> = 25°C	I <sub>D</sub>	-0.58	-0.6	A
	T <sub>A</sub> = 70°C		-0.46	-0.48	
Pulsed Drain Current		I <sub>DM</sub>	-2	-3	
Continuous Source Current (MOSFET Diode Conduction)		I <sub>S</sub>	-0.3	-0.6	
Power Dissipation	T <sub>A</sub> = 25°C	P <sub>D</sub>	0.35	0.35	W
	T <sub>A</sub> = 70°C		0.22	0.22	
Operating Junction & Storage Temperature Range		T <sub>J</sub> & T <sub>stg</sub>	-55 to 150	-55 to 150	°C
Maximum Junction-to-Ambient		R <sub>thJA</sub>	357	357	°C/W

SPECIFICATIONS (T <sub>J</sub> = 25°C UNLESS OTHERWISE NOTED)									
Parameter	Symbol	TP0101K			TP0101T			Unit	
		Min	Typ	Max	Min	Typ	Max		
<b>Static</b>									
Gate-Threshold Voltage	V <sub>GS(th)</sub>	-0.5	-0.7	-1.0	-0.5	-0.9	-1.5	V	
Gate-Body Leakage	I <sub>GSS</sub>			±5000			±100	nA	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>			-1			-1	µA	
On-State Drain Current	V <sub>GS</sub> = -4.5 V	I <sub>D(on)</sub>	-1.2		-2.5			A	
	V <sub>GS</sub> = -2.5 V		-0.5		-0.5				
Drain-Source On-Resistance	V <sub>GS</sub> = -4.5 V	r <sub>DS(on)</sub>		0.42	0.65		0.45	0.65	Ω
	V <sub>GS</sub> = -2.5 V			0.64	0.85		0.69	0.85	
Forward Transconductance	g <sub>fs</sub>		1300			1300		S	
Diode Forward Voltage	V <sub>SD</sub>		-0.9	-1.2		-0.9	-1.2	V	
<b>Dynamic</b>									
Total Gate Charge	Q <sub>g</sub>		1400	2200		2020	3000	nC	
Gate-Source Charge	Q <sub>gs</sub>		300			180			
Gate-Drain Charge	Q <sub>gd</sub>		250			720			
Gate Resistance	R <sub>g</sub>		150			NS		Ω	
<b>Switching<sup>a</sup></b>									
Turn-On Time	t <sub>d(on)</sub>		25	35		7	12	ns	
	t <sub>r</sub>		30	45		25	35		
Turn-Off Time	t <sub>d(off)</sub>		55	85		19	30		
	t <sub>f</sub>		38	60		9	15		

NS denotes not specified in original datasheet