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_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		**Symbol**	**TP0101K**	**TP0101T**	**Unit**
Drain-Source Voltage		V_{DS}	-20	-20	V
Gate-Source Voltage		V_{GS}	±8	±8	
Continuous Drain Current	T_A = 25°C	I_D	-0.58	-0.6	A
	T_A = 70°C		-0.46	-0.48	
Pulsed Drain Current		I_{DM}	-2	-3	
Continuous Source Current (MOSFET Diode Conduction)		I_S	-0.3	-0.6	
Power Dissipation	T_A = 25°C	P_D	0.35	0.35	W
	T_A = 70°C		0.22	0.22	
Operating Junction & Storage Temperature Range		T_j & T_{stg}	-55 to 150	-55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	357	357	°C/W

SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)									
Parameter		**Symbol**	**TP0101K**			**TP0101T**			**Unit**
			Min	**Typ**	**Max**	**Min**	**Typ**	**Max**	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	-0.5	-0.7	-1.0	-0.5	-0.9	-1.5	V
Gate-Body Leakage		I_{GSS}			±5000			±100	nA
Zero Gate Voltage Drain Current		I_{DSS}			-1			-1	µA
On-State Drain Current	V_{GS} = -4.5 V	$I_{D(on)}$	-1.2			-2.5			A
	V_{GS} = -2.5 V		-0.5			-0.5			
Drain-Source On-Resistance	V_{GS}= -4.5 V	$r_{DS(on)}$		0.42	0.65		0.45	0.65	Ω
	V_{GS} = -2.5 V			0.64	0.85		0.69	0.85	
Forward Transconductance		g_{fs}		1300			1300		S
Diode Forward Voltage		V_{SD}		-0.9	-1.2		-0.9	-1.2	V
Dynamic									
Total Gate Charge		Qg		1400	2200		2020	3000	nC
Gate-Source Charge		Qgs		300			180		
Gate-Drain Charge		Qgd		250			720		
Gate Resistance		Rg		150			NS		Ω
Switching[a]									
Turn-On Time		$t_{d(on)}$		25	35		7	12	ns
		t_r		30	45		25	35	
Turn-Off Time		$t_{d(off)}$		55	85		19	30	
		t_f		38	60		9	15	

NS denotes not specified in original datasheet