



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		Q _g		1400	2200		2020	3000	nC
Gate-Source Charge		Q _{gs}		300			180		
Gate-Drain Charge		Q _{gd}		250			720		
Gate Resistance		R _g		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