



## TN0200K vs. TN0200T

**Description:** N-Channel MOSFET  
**Package:** SOT-23  
**Pin Out:** Identical

**Part Number Replacements:**

TN0200K-T1 Replaces TN0200T-T1  
TN0200K-T1—E3 (Lead Free version) Replaces TN0200T-T1

**Summary of Performance:**

The TN0200K is a technological upgrade with ESD protection for the original TN0200T. The ESD protection diodes on the gate increase Gate-Body Leakage; otherwise both parts perform identically including limits to the parametric tables below.

<b>ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)</b>					
Parameter		Symbol	TN0200K	TN0200T	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>	0.73	0.73	A
	See Note		0.58	0.58	
Pulsed Drain Current		I <sub>DM</sub>	4	4	
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 and Storage Temperature Range		T <sub>J</sub> and T <sub>stg</sub>	-55 to 150	-55 to 150	°C
Maximum Junction-to-Ambient		R <sub>thJA</sub>	357	357	°C/W

<b>SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)</b>									
Parameter	Symbol	TN0200K			TN0200T			Unit	
		Min	Typ	Max	Min	Typ	Max		
<b>Static</b>									
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	20			20			V	
Gate-Threshold Voltage	V <sub>G(th)</sub>	0.45	0.6	1.0	0.5	0.9	1.5		
Gate-Body Leakage	I <sub>IGSS</sub>			±5000			±100	nA	
Zero Gate Voltage Drain Current	I <sub>DBSS</sub>			1			1	µA	
On-State Drain Current	V <sub>GS</sub> = 4.5 V	I <sub>D(on)</sub>	2.5			2.5		A	
	V <sub>GS</sub> = 2.5 V		1.5			1.5			
Drain-Source On-Resistance	V <sub>GS</sub> = 4.5 V	r <sub>DS(on)</sub>		0.2	0.4		0.29	0.4	Ω
	V <sub>GS</sub> = 2.5 V			0.25	0.5		0.34	0.5	
Forward Transconductance	g <sub>fs</sub>		2.2			2.2		S	
Diode Forward Voltage	V <sub>SD</sub>		0.8	1.2		0.8	1.2	V	
<b>Dynamic</b>									
Total Gate Charge	Q <sub>g</sub>		1400	2000		1900	2800	pC	
Gate-Source Charge	Q <sub>gs</sub>		190			50		nC	
Gate-Drain Charge	Q <sub>gd</sub>		300			750			
<b>Switching</b>									
Turn-On Time	t <sub>d(on)</sub>		17	25		8	13	ns	
	t <sub>r</sub>		20	30		14	21		
Turn-Off Time	t <sub>d(off)</sub>		55	85		21	30		
	t <sub>f</sub>		30	45		7	11		

NS denotes parameter not specified.