



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.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	TN0200K	TN0200T	Unit
Drain-Source Voltage		V_{DS}	20	20	V
Gate-Source Voltage		V_{GS}	± 8	± 8	
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	0.73	0.73	A
	See Note		0.58	0.58	
Pulsed Drain Current		I_{DM}	4	4	
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	0.35	0.35	W
	$T_A = 70^\circ\text{C}$		0.22	0.22	
Operating Junction and Storage Temperature Range		T_j and T_{stg}	-55 to 150	-55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient		R_{thJA}	357	357	$^\circ\text{C/W}$

SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)									
Parameter		Symbol	TN0200K			TN0200T			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Drain-Source Breakdown Voltage		V _{(BR)DSS}	20			20			V
Gate-Threshold Voltage		V _{G(th)}	0.45	0.6	1.0	0.5	0.9	1.5	
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)}	2.5			2.5			A
	V _{GS} = 2.5 V		1.5			1.5			
Drain-Source On-Resistance	V _{GS} = 4.5 V	r _{DS(on)}		0.2	0.4		0.29	0.4	Ω
	V _{GS} = 2.5 V			0.25	0.5		0.34	0.5	
Forward Transconductance		g _{fs}		2.2			2.2		S
Diode Forward Voltage		V _{SD}		0.8	1.2		0.8	1.2	V
Dynamic									
Total Gate Charge		Q _g		1400	2000		1900	2800	pC
Gate-Source Charge		Q _{gs}		190			50		nC
Gate-Drain Charge		Q _{gd}		300			750		
Switching									
Turn-On Time		t _{d(on)}		17	25		8	13	ns
		t _r		20	30		14	21	
Turn-Off Time		t _{d(off)}		55	85		21	30	
		t _f		30	45		7	11	

NS denotes parameter not specified.