



TP0610K vs. TP0610T

Description: P-Channel, 60 V (D-S) MOSFET
Package: SOT-23
Pin Out: Identical

Part Number Replacements

TP0610K Replaces TP0610T
 TP0610K-E3 (Lead (Pb)-free version) Replaces TP0610T
 TP0610K-T1 Replaces TP0610T-T1
 TP0610K-T1-E3 (Lead (Pb)-free Version)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)					
Parameter	Symbol	TP0610K	TP0610T	Unit	
Drain-Source Voltage	V_{DS}	- 60	- 60	V	
Gate-Source Voltage	V_{GS}	± 20	± 30		
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	- 0.185	- 0.12	A
	$T_A = 100\text{ }^\circ\text{C}$		- 0.115	- 0.07	
Pulsed Drain Current	I_{DM}	-0.8	-0.4		
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	0.35	0.36	W
	$T_A = 100\text{ }^\circ\text{C}$		0.14	0.14	
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}	350	350	$^\circ\text{C/W}$	

SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)								
Parameter	Symbol	TP0610K			TP0610T			Unit
		Min	Typ	Max	Min	Typ	Max	
Static								
Gate-Threshold Voltage	$V_{G(th)}$	- 1.0		- 3.0	- 1.0	- 1.9	- 2.4	V
Gate-Body Leakage ^b	I_{GSS}			± 10				μA
							± 10	nA
Zero Gate Voltage Drain Current	I_{DSS}			- 0.025			- 1	μA
On-State Drain Current	$V_{GS} = - 10\text{ V}$	$I_{D(on)}$	- 0.6			- 0.75		A
	$V_{GS} = - 4.5\text{ V}$		- 0.05		-0.05	- 0.18		
Drain-Source On-Resistance	$V_{GS} = - 10\text{ V}$	$r_{DS(on)}$		6		6.5	10	W
	$V_{GS} = - 4.5\text{ V}$			10		11	25	
Forward Transconductance	g_{fs}	80			60	90		mS
Diode Forward Voltage	V_{SD}			- 1.4		- 1.1		V
Dynamic								
Total Gate Charge	Q_g		1.7			0.1 ^a		nC
Gate-Source Charge	Q_{gs}		0.26			0.2 ^a		
Gate-Drain Charge	Q_{gd}		0.46			0.33 ^a		
Switching								
Turn-On Time	t_{ON}		20			8		ns
Turn-Off Time	t_{OFF}		35			8		

Notes:

- Q_g , Q_{gs} and Q_{gd} for TP0610T are not specified, values above taken from characteristics curves.
- 2 kV ESD protection affects gate leakage

Specification comparisons are supplied as a courtesy to compare two devices and do not constitute a commercial product datasheet or any guarantee of identical performance. Designers should refer to the appropriate datasheets of the same number for guaranteed specification limits.