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NTE2910

N-Channel Field Effect Transistor Switch, TO18 Type Package

Features:

- Fast Switching, $t_{ON} \leq 15\text{ns}$

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$, Note 1 unless otherwise specified)

Maximum Gate-to-Drain or Source	-40V
Maximum Gate Current	50mA
Maximum Continuous Power Dissipation	1800mW
Operating Junction Temperature Range	-55° to +200°C
Storage Temperature Range	-65° to +200°C

Note 1. Absolute Maximum Ratings are limiting values above which serviceability may be impaired.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Gate-to-Source Breakdown Voltage	BV_{GSS}	$I_G = -1\mu\text{A}$, $V_{DS} = 0\text{V}$	-40	-	-	V
Gate-to-Source Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 20\text{V}$, $I_D = 1\text{nA}$	-0.5	-	-3.0	V
Gate-to-Source Forward Voltage	$V_{GS(F)}$	$I_G = 1\text{mA}$, $V_{DS} = 0\text{V}$	-	0.7	1.0	V
Drain-to-Source ON Voltage	$V_{DS(on)}$	$V_{GS} = 0\text{V}$, $I_D = 3\text{mA}$	-	0.25	0.4	V
Drain-to-Source Saturation Current	I_{DSS}	$V_{DS} = 20\text{V}$, $V_{GS} = 0\text{V}$, Note 2	5	-	30	mA
Gate Leakage Current	I_{GSS}	$V_{GS} = -20\text{V}$, $V_{DS} = 0\text{V}$	-	-5	-100	pA
Gate Operating Current	I_G	$V_{DG} = 15\text{V}$, $I_D = 10\text{mA}$	-	-5	-	pA
Drain Cutoff Current	$I_{D(off)}$	$V_{DS} = 20\text{V}$, $V_{GS} = -5\text{V}$	-	5	100	pA
Drain-to-Source ON Resistance	$r_{DS(on)}$	$V_{GS} = 0\text{V}$, $I_D = 1\text{mA}$	-	-	100	Ω

Note 2. Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 3\%$.

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics						
Forward Transconductance	g_{fs}	$V_{DS} = 20\text{V}, I_D = 1\text{mA}, f = 1\text{kHz}$	-	6	-	mS
Output Conductance	g_{os}	$V_{DS} = 20\text{V}, I_D = 1\text{mA}, f = 1\text{kHz}$	-	25	-	μS
Drain-to-Source ON Resistance	$r_{DS(on)}$	$V_{GS} = 0\text{V}, I_D = 0\text{A}, f = 1\text{kHz}$	-	-	100	Ω
Input Capacitance	C_{iss}	$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	-	12	14	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 0\text{V}, V_{GS} = -5\text{V}, f = 1\text{MHz}$	-	3.3	3.5	pF
Equivalent Input Noise Voltage	e_n	$V_{DS} = 10\text{V}, I_D = 10\text{mA}, f = 1\text{kHz}$	-	3	-	$\text{nV}/\sqrt{\text{Hz}}$
Switching Characteristics						
Turn-On Time	$t_{d(on)}$	$V_{DD} = 10\text{V}, V_{GS(H)} = 0\text{V}$	-	2	15	ns
	t_r		-	2	5	ns
Turn-Off Time	$t_{d(off)}$		-	6	50	ns
	t_f		-	13	30	ns

