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## NTE464 (P-Ch) & NTE465 (N-Ch) Silicon Complementary MOSFET Transistors Enhancement Mode for Switching Applications TO72 Type Package

**Absolute Maximum Ratings:**

Drain-Source Voltage, $V_{DS}$ .....	25V
Drain-Gate Voltage, $V_{DG}$ .....	30V
Gate-Source Voltage, $V_{GS}$ .....	$\pm 30V$
Gate Current, $I_G$ .....	30mA
Total Device Dissipation ( $T_A = +25^\circ C$ ), $P_D$ .....	300mW
Derate Above $25^\circ C$ .....	1.7mW/ $^\circ C$
Total Device Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	800mW
Derate Above $25^\circ C$ .....	4.56mW/ $^\circ C$
Operating Junction Temperature, $T_J$ .....	$+175^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+175^\circ C$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSX}$	$I_D = -10^\circ A, V_{GS} = 0$	-25	-	-	V
Zero-Gate-Voltage Drain Current	$I_{DSS}$	$V_{DS} = -10V, V_{GS} = 0, T_A = +25^\circ C$	-	-	-10	nA
		$V_{DS} = -10V, V_{GS} = 0, T_A = +150^\circ C$	-	-	-10	$^\circ A$
Gate Reverse Current	$I_{GSS}$	$V_{GS} = \pm 30V, V_{DS} = 0$	-	-	$\pm 10$	pA
<b>ON Characteristics</b>						
Gate Threshold Voltage	$V_{GS(Th)}$	$V_{DS} = -10V, I_D = -10^\circ A$	-1	-	-5	V
Drain-Source On-Voltage	$V_{DS(on)}$	$I_D = -2mA, V_{GS} = -10V$	-	-	-1	V
On-State Drain Current	$I_{D(on)}$	$V_{GS} = -10V, V_{DS} = -10V$	-3	-	-	mA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Small-Signal Characteristics</b>						
Drain-Source Resistance NTE464	$r_{ds(on)}$	$V_{GS} = -10\text{V}, I_D = 0, f = 1\text{kHz}$	-	-	600	$\pm$
NTE465			-	-	300	$\pm$
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}, I_D = 2\text{mA}, f = 1\text{kHz}$	1000	-	-	$^\circ\text{mhos}$
Input Capacitance	$C_{iss}$	$V_{DS} = -10\text{V}, V_{GS} = 0, f = 140\text{kHz}$	-	-	5	pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = 0, V_{GS} = 0, f = 140\text{kHz}$	-	-	1.3	pF
Drain-Substrate Capacitance NTE464	$C_{d(sub)}$	$V_{D(SUB)} = -10\text{V}, f = 140\text{kHz}$	-	-	4	pF
NTE465			-	-	5	pF
<b>Switching Characteristics</b>						
Turn-On Delay	$t_{d1}$	$I_D = -2\text{mA}, V_{DS} = -10\text{V}, V_{GS} = -10\text{V}$	-	-	45	ns
Rise Time	$t_r$		-	-	65	ns
Turn-Off Delay	$t_{d2}$		-	-	60	ns
Fall Time	$t_f$		-	-	100	ns

