2N3993, 2N3993A

P-Channel Silicon Junction Field-Effect Transistor

- **Choppers**
- **High Speed Commutators**

Absolute maximum ratings at $T_A = 25\,°C$

Reverse Gate Source & Reverse Gate Drain Voltage	25 V
Continuous Forward Gate Current	– 10 mA
Continuous Device Power Dissipation	300 mW
Power Derating	2.4 mW/°C

At 25°C free air temperature:		2N3993		2N3993A		Process PJ99		
Static Electrical Characteristics		Min	Max	Min	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	25		25		V	$I_G = 1\ \mu A,\ V_{DS} = ØV$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	4	9.5	4	9.5	V	$V_{DS} = -10\,V,\ I_D = -1\ \mu A$	
Drain Saturation Current (Pulsed)	I_{DSS}	– 10		– 10		mA	$V_{DS} = -10\,V,\ V_{GS} = ØV$	
Drain Reverse Current	I_{DGO}		– 1.2		– 1.2	nA	$V_{DG} = -15\,V,\ I_S = ØA$	
			– 1.2		– 1.2	μA	$V_{DG} = -15\,V,\ I_S = ØA$	$T_A = 150°C$
Drain Cutoff Current	$I_{D(OFF)}$		– 1.2		– 1.2	nA	$V_{DS} = -10\,V,\ V_{GS} = 10\,V$	
			– 1		– 1	μA	$V_{DS} = -10\,V,\ V_{GS} = 10\,V$	$T_A = 150°C$
Dynamic Electrical Characteristics								
Drain Source ON Resistance	$r_{ds(on)}$		150		150	Ω	$V_{GS} = ØV,\ I_D = ØA$	f = 1 kHz
Common Source Forward Transmittance	$\lvert Y_{fs} \rvert$	6	12	7	12	mS	$V_{DS} = -10\,V,\ V_{GS} = ØV$	f = 1 kHz
Common Source Input Capacitance	C_{iss}		16		12	pF	$V_{DS} = -10\,V,\ V_{GS} = ØV$	f = 1 MHz
Common Source Reverse Transfer Capacitance	C_{rss}		4.5		3	pF	$V_{DS} = Ø,\ V_{GS} = 10\,V$	f = 1 MHz

TO-72 Package
Dimensions in Inches (mm)

Pin Configuration
1 Source, 2 Gate, 3 Drain, 4 Case

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