

## 2N3993, 2N3993A

## P-Channel Silicon Junction Field-Effect Transistor

- Choppers
- High Speed Commutators

Absolute maximum ratings at  $T_A = 25^\circ\text{C}$ 

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:

## Static Electrical Characteristics

		2N3993		2N3993A		Process PJ99	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	25		25		V	$I_G = 1\ \mu\text{A}, V_{DS} = \emptyset\text{V}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	4	9.5	4	9.5	V	$V_{DS} = -10\text{V}, I_D = -1\ \mu\text{A}$
Drain Saturation Current (Pulsed)	$I_{DSS}$	- 10		- 10		mA	$V_{DS} = -10\text{V}, V_{GS} = \emptyset\text{V}$
Drain Reverse Current	$I_{DGO}$		- 1.2		- 1.2	nA	$V_{DG} = -15\text{V}, I_S = \emptyset\text{A}$
			- 1.2		- 1.2	$\mu\text{A}$	$V_{DG} = -15\text{V}, I_S = \emptyset\text{A}$ $T_A = 150^\circ\text{C}$
Drain Cutoff Current	$I_{D(OFF)}$		- 1.2		- 1.2	nA	$V_{DS} = -10\text{V}, V_{GS} = 10\text{V}$
			- 1		- 1	$\mu\text{A}$	$V_{DS} = -10\text{V}, V_{GS} = 10\text{V}$ $T_A = 150^\circ\text{C}$

## Dynamic Electrical Characteristics

Drain Source ON Resistance	$r_{ds(on)}$		150		150	$\Omega$	$V_{GS} = \emptyset\text{V}, I_D = \emptyset\text{A}$	$f = 1\ \text{kHz}$
Common Source Forward Transmittance	$ Y_{fs} $	6	12	7	12	mS	$V_{DS} = -10\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1\ \text{kHz}$
Common Source Input Capacitance	$C_{iss}$		16		12	pF	$V_{DS} = -10\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1\ \text{MHz}$
Common Source Reverse Transfer Capacitance	$C_{rss}$		4.5		3	pF	$V_{DS} = \emptyset, V_{GS} = 10\text{V}$	$f = 1\ \text{MHz}$

## TO-72 Package

Dimensions in Inches (mm)

## Pin Configuration

1 Source, 2 Gate, 3 Drain, 4 Case