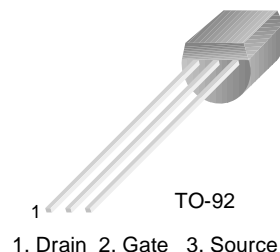


## 2N3820

2N3820

### P-Channel General Purpose Amplifier

- This device is designed primarily for low level audio and general purpose applications with high impedance signal sources.
- Sourced from process 89.



### Epitaxial Silicon Transistor

#### Absolute Maximum Ratings\* $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Ratings	Units
$V_{DG}$	Drain-Gate Voltage	-20	V
$V_{GS}$	Gate-Source Voltage	20	V
$I_{GF}$	Forward Gate Current	10	mA
$T_{STG}$	Storage Temperature Range	-55 ~ 150	$^\circ\text{C}$

\* This ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These rating are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

#### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 10\mu\text{A}, V_{DS} = 0$	20			V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = 10\text{V}, V_{DS} = 0$			20	nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = -10\text{V}, I_D = -10\mu\text{A}$			8.0	V
<b>On Characteristics</b>						
$I_{DSS}$	Zero-Gate Voltage Drain Current *	$V_{DS} = -10\text{V}, V_{GS} = 0$	-0.3		-15	mA
<b>Small Signal Characteristics</b>						
gfs	Forward Transfer Conductance	$V_{DS} = -10\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$	800		5000	$\mu\text{mhos}$
$C_{iss}$	Input Capacitance	$V_{DS} = -10\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$			32	pF
$C_{rss}$	Reverse Transfer Capacitance	$V_{DS} = -10\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$			16	pF

\* Pulse Test: Pulse Width  $\leq 300\text{ms}$ , Duty Cycle  $\leq 2\%$

#### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation	350	mW
	Derate above $25^\circ\text{C}$	2.8	$\text{mW}/^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

\* Device mounted on FR-4 PCB  $1.6" \times 1.6" \times 0.06"$

# Package Dimensions

## TO-92



Dimensions in Millimeters

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