

## TECHNICAL DATA

### PNP SILICON SMALL SIGNAL TRANSISTOR

Qualified per MIL-PRF-19500/382

#### Devices

2N2944A

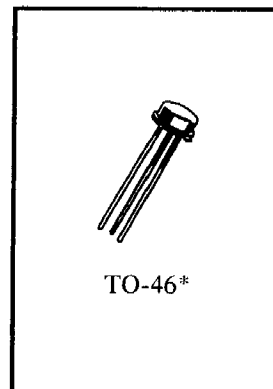
2N2945A

2N2946A

#### MAXIMUM RATINGS

Ratings	Sym	2N2944A	2N2945A	2N2946A	Unit
Collector-Emitter Voltage	$V_{CE0}$	10	20	35	Vdc
Emitter-Collector Voltage	$V_{ECO}$	10	20	35	Vdc
Collector-Base Voltage	$V_{CBO}$	15	25	40	Vdc
Emitter-Base Voltage	$V_{EBO}$	15	25	40	Vdc
Collector Current	$I_C$	100			mA <sub>dc</sub>
Total Power Dissipation @ $T_A = +25^\circ\text{C}$	$P_T^{(1)}$	400			mW
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200			$^\circ\text{C}$

1) Derate linearly 2.30 mW/ $^\circ\text{C}$  above  $T_A = +25^\circ\text{C}$



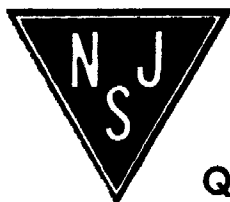
\*See appendix A for package outline

#### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
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#### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 10 \mu\text{A}_{dc}$	2N2944A 2N2945A 2N2946A	$V_{(BR)CEO}$	10 20 35	Vdc
Emitter-Collector Breakdown Voltage $I_E = 10 \mu\text{A}_{dc}$	2N2944A 2N2945A 2N2946A	$V_{(BR)ECO}$	10 20 35	Vdc
Collector-Base Cutoff Current $I_C = 10 \mu\text{A}_{dc}, V_{CB} = -15 \text{Vdc}$ $I_C = 10 \mu\text{A}_{dc}, V_{CB} = -25 \text{Vdc}$ $I_C = 10 \mu\text{A}_{dc}, V_{CB} = -40 \text{Vdc}$	2N2944A 2N2945A 2N2946A	$I_{CBO}$	10 10 10	$\mu\text{A}_{dc}$ $\mu\text{A}_{dc}$ $\mu\text{A}_{dc}$



2N2944A, 2N2945A, 2N2946A

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Emitter-Base Cutoff Current $V_{EB} = 15 \text{ Vdc}$ $V_{EB} = 25 \text{ Vdc}$ $V_{EB} = 40 \text{ Vdc}$	$I_{EBO}$		0.1 0.2 0.5	$\eta\text{A dc}$

ON CHARACTERISTICS <sup>(2)</sup>

Forward-Current Transfer Ratio $I_C = 1.0 \text{ mAdc}$ , $V_{CE} = 0.5 \text{ Vdc}$	$h_{FE}$	100 70 50		
Forward-Current Transfer Ratio $I_B = 200 \mu\text{Adc}$ , $V_{EC} = -0.5 \text{ Vdc}$	$h_{FE(INV)}$	50 30 20		
Emitter-Collector Offset Voltage $I_B = 200 \mu\text{Adc}$ , $I_E = 0$ $I_B = 1.0 \text{ mAdc}$ , $I_E = 0$ $I_B = 2.0 \text{ mAdc}$ , $I_E = 0$	$V_{EC(OFS)}$		0.3 0.5 0.8 0.6 1.0 2.0 1.0 1.6 2.5	$\text{mVdc}$

DYNAMIC CHARACTERISTICS

Emitter-Collector On-State Resistance $I_B = 100 \mu\text{Adc}$ , $I_E = 0$ , $I_C = 100 \mu\text{Adc (rms)}$ $f = 1.0 \text{ kHz}$ $I_B = 1.0 \text{ mAdc}$ , $I_E = 0$ , $I_C = 100 \mu\text{Adc (rms)}$ $f = 1.0 \text{ kHz}$	$r_{ec(on)}$		10 12 14 4.0 6.0 8.0	$\Omega$
Magnitude of Small-Signal Forward Current Transfer Ratio $I_C = 1.0 \text{ mAdc}$ , $V_{CE} = 6.0 \text{ Vdc}$ , $f = 1.0 \text{ MHz}$	$h_{fe}$	15 10 5.0	55 55 55	
Output Capacitance $V_{CE} = 6.0 \text{ Vdc}$ , $I_E = 0$ , $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{obo}$		10	$\text{pF}$
Input Capacitance $V_{EB} = 6.0 \text{ Vdc}$ , $I_C = 0$ , $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{ibo}$		6.0	$\text{pF}$

(2) Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

