

PNP SILICON SMALL SIGNAL TRANSISTOR

Qualified per MIL-PRF-19500/382

Devices

2N2944A

2N2945A

2N2946A

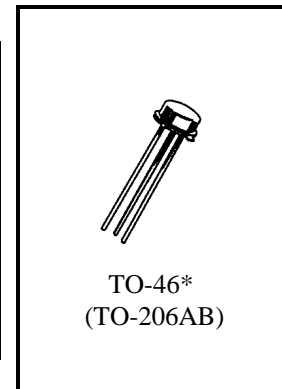
Qualified Level

JAN
JANTX
JANTV

MAXIMUM RATINGS

Ratings	Sym	2N2944A	2N2945A	2N2946A	Unit
Collector-Emitter Voltage	V_{CEO}	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			mAdc
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
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage $I_C = 10 \mu\text{Adc}$	$V_{(BR)CEO}$	10		Vdc
2N2944A		20		
2N2945A 2N2946A		35		
Emitter-Collector Breakdown Voltage $I_E = 10 \mu\text{Adc}$	$V_{(BR)ECO}$	10		Vdc
2N2944A		20		
2N2945A 2N2946A		35		
Collector-Base Cutoff Current $I_C = 10 \mu\text{Adc}, V_{CB} = -15 \text{Vdc}$	I_{CBO}	10		μAdc
$I_C = 10 \mu\text{Adc}, V_{CB} = -25 \text{Vdc}$		10		μAdc
$I_C = 10 \mu\text{Adc}, V_{CB} = -40 \text{Vdc}$		10		μAdc

2N2944A, 2N2945A, 2N2946A JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Emitter-Base Cutoff Current				
$V_{EB} = 15 \text{ Vdc}$ 2N2944A	I_{EBO}		0.1	ηAdc
$V_{EB} = 25 \text{ Vdc}$ 2N2945A		0.2		
$V_{EB} = 40 \text{ Vdc}$ 2N2946A		0.5		

ON CHARACTERISTICS ⁽²⁾

Forward-Current Transfer Ratio				
$I_C = 1.0 \text{ mAdc}, V_{CE} = 0.5 \text{ Vdc}$ 2N2944A 2N2945A 2N2946A	h_{FE}	100 70 50		
Forward-Current Transfer Ratio				
$I_B = 200 \mu\text{Adc}, V_{EC} = -0.5 \text{ Vdc}$ 2N2944A 2N2945A 2N2946A		$h_{FE(INV)}$	50 30 20	
Emitter-Collector Offset Voltage				
$I_B = 200 \mu\text{Adc}, I_E = 0$ 2N2944A 2N2945A 2N2946A	$V_{EC(OFS)}$			0.3 0.5 0.8
$I_B = 1.0 \text{ mAdc}, I_E = 0$ 2N2944A 2N2945A 2N2946A		0.6 1.0 2.0		
$I_B = 2.0 \text{ mAdc}, I_E = 0$ 2N2944A 2N2945A 2N2946A		1.0 1.6 2.5		

DYNAMIC CHARACTERISTICS

Emitter-Collector On-State Resistance				
$I_B = 100 \mu\text{Adc}, I_E = 0, I_c = 100 \mu\text{Adc (rms)}$ $f = 1.0 \text{ kHz}$ 2N2944A 2N2945A 2N2946A	$r_{ec(on)}$		10 12 14	Ω
$I_B = 1.0 \text{ mAdc}, I_E = 0, I_c = 100 \mu\text{Adc (rms)}$ $f = 1.0 \text{ kHz}$ 2N2944A 2N2945A 2N2946A		4.0 6.0 8.0		
Magnitude of Small-Signal Forward Current Transfer Ratio				
$I_C = 1.0 \text{ mAdc}, V_{CE} = 6.0\text{Vdc}, f = 1.0 \text{ MHz}$ 2N2944A 2N2945A 2N2946A	h_{fe}	15 10 5.0	55 55 55	
Output Capacitance				
$V_{CB} = 6.0 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}		10
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	pF

(2) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.