

PNP SILICON SMALL SIGNAL TRANSISTOR

Qualified per MIL-PRF-19500/382

Devices

2N2944A
2N2945A
2N2946A

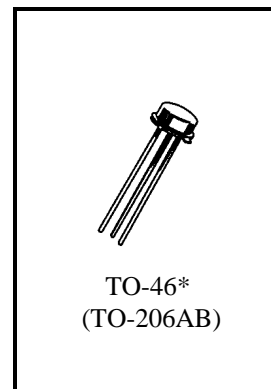
Qualified Level

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 $I_C = 10 \mu\text{Adc}$	2N2944A 2N2945A 2N2946A	$V_{(BR)CEO}$	10 20 35	Vdc
Emitter-Collector Breakdown Voltage $I_E = 10 \mu\text{Adc}$	2N2944A 2N2945A 2N2946A	$V_{(BR)ECO}$	10 20 35	Vdc
Collector-Base Cutoff Current $I_C = 10 \mu\text{Adc}, V_{CB} = -15 \text{ Vdc}$ $I_C = 10 \mu\text{Adc}, V_{CB} = -25 \text{ Vdc}$ $I_C = 10 \mu\text{Adc}, V_{CB} = -40 \text{ Vdc}$	2N2944A 2N2945A 2N2946A	I_{CBO}	10 10 10	μAdc μAdc 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	h_{FE}	100		
2N2945A		70		
2N2946A		50		
Forward-Current Transfer Ratio				
$I_B = 200 \mu\text{Adc}$, $V_{EC} = -0.5 \text{ Vdc}$ 2N2944A	$h_{FE(INV)}$	50		
2N2945A		30		
2N2946A		20		
Emitter-Collector Offset Voltage				
$I_B = 200 \mu\text{Adc}$, $I_E = 0$ 2N2944A	$V_{EC(OFS)}$		0.3	mVdc
2N2945A			0.5	
2N2946A			0.8	
$I_B = 1.0 \text{ mAdc}$, $I_E = 0$ 2N2944A			0.6	
2N2945A			1.0	
2N2946A			2.0	
$I_B = 2.0 \text{ mAdc}$, $I_E = 0$ 2N2944A			1.0	
2N2945A			1.6	
2N2946A			2.5	

DYNAMIC CHARACTERISTICS

Emitter-Collector On-State Resistance				
$I_B = 100 \mu\text{Adc}$, $I_E = 0$, $I_e = 100 \mu\text{Adc (rms)}$ 2N2944A	$r_{ec(on)}$		10	Ω
$f = 1.0 \text{ kHz}$ 2N2945A			12	
2N2946A			14	
$I_B = 1.0 \text{ mAdc}$, $I_E = 0$, $I_e = 100 \mu\text{Adc (rms)}$ 2N2944A			4.0	
$f = 1.0 \text{ kHz}$ 2N2945A			6.0	
2N2946A			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	h_{fe}	15	55	
2N2945A		10	55	
2N2946A		5.0	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	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	pF

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