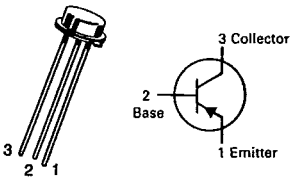
T-37-23

2N2945A
2N2946A

JAN, JTX, JTXV AVAILABLE
CASE 26-03, STYLE 1
TO-46 (TO-206AB)



CHOPPER TRANSISTORS

PNP SILICON

MAXIMUM RATINGS

Rating	Symbol	2N2945A	2N2946A	Unit
Emitter-Collector Voltage	V_{ECO}	20	35	Vdc
Collector-Base Voltage	V_{CBO}	25	40	Vdc
Emitter-Base Voltage	V_{EBO}	25	40	Vdc
Collector Current — Continuous	I_C	100		mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	400 2.3		mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	2.0 11.43		Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C
Lead Temperature 1/16" from Case for 10 seconds	T_L	240		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	435	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	87.5	°C/W

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Emitter-Collector Breakdown Voltage (I_E = 10 μAdc, I_B = 0)	 2N2945A 2N2946A	$V_{(BR)ECO}$	 20 35	 — —	 — —	Vdc
Collector Cutoff Current (V_{CB} = 25 Vdc, I_E = 0) (V_{CB} = 40 Vdc, I_E = 0) (V_{CB} = 25 Vdc, I_E = 0, T_A = 100°C) (V_{CB} = 40 Vdc, I_E = 0, T_A = 100°C)	 2N2945A 2N2946A 2N2945A 2N2946A	I_{CBO}	 — — — —	 — — — —	 0.2 0.5 20 25	nAdc
Emitter Cutoff Current (V_{EB} = 25 Vdc, I_C = 0) (V_{EB} = 40 Vdc, I_C = 0) (V_{EB} = 25 Vdc, I_C = 0, T_A = 100°C) (V_{EB} = 40 Vdc, I_C = 0, T_A = 100°C)	 2N2945A 2N2946A 2N2945A 2N2946A	I_{EBO}	 — — — —	 — — — —	 0.2 0.5 15 20	nAdc
ON CHARACTERISTICS						
DC Current Gain (I_C = 1.0 mAdc, V_{CE} = 0.5 Vdc)	 2N2945A 2N2946A	h_{FE}	 70 50	 200 200	 — —	—
DC Current Gain (Inverted Connection) (I_B = 200 μAdc, V_{EC} = 0.5 Vdc)	 2N2945A 2N2946A	$h_{FE(inv)}$	 30 20	 32 25	 — —	—
Offset Voltage (I_B = 200 μAdc, I_E = 0) (I_B = 1.0 mAdc, I_E = 0) (I_B = 2.0 mAdc, I_E = 0)	 2N2945A 2N2946A 2N2945A 2N2946A 2N2945A 2N2946A	$V_{EC(ofs)}$	 — — — — — —	 0.4 0.7 0.5 0.6 0.9 1.0	 0.5 0.8 1.0 2.0 1.5 2.5	mVdc

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product (I_C = 1.0 mAdc, V_{CE} = 6.0 Vdc, f = 1.0 MHz)	2N2945A 2N2946A	f_T	10 5.0	15 8.0	— —	MHz
Output Capacitance (V_{CB} = 6.0 Vdc, I_E = 0, f = 0.1 MHz to 1.0 MHz)		C_{obo}	—	3.2	10	pF
Input Capacitance (V_{EB} = 6.0 Vdc, I_C = 0, f = 0.1 MHz to 1.0 MHz)		C_{ibo}	—	1.9	6.0	pF
"ON" Series Resistance (I_B = 1.0 mAdc, I_E = 0, I_e = 100 μArms, f = 1.0 kHz)	2N2945A 2N2946A	$r_{ec(on)}$	— —	5.0 7.0	6.0 8.0	Ohms

FIGURE 1 — $V_{EC(on)}$

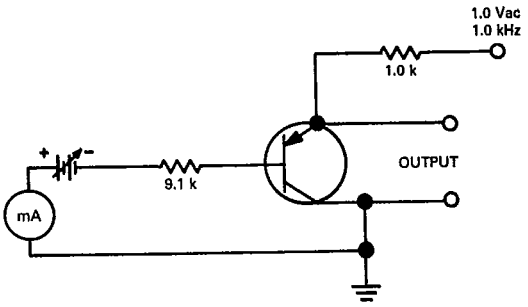
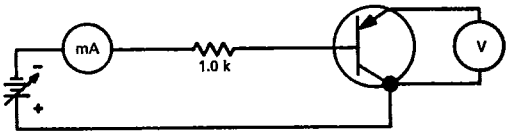


FIGURE 2 — $V_{EC(offset)}$



mA + + + + + – – – – – 9.1 k 2% 1.0 Vac
10 k 2% Output Figure 1 — rec(on) $r_{ec(on)}$ $r_{ec(on)}$
mA 1.0k 2% V
Output measured with H.P. 400D
Ac VTVM or equivalent.
1.0 mV = 1.0 Ω rec(on)

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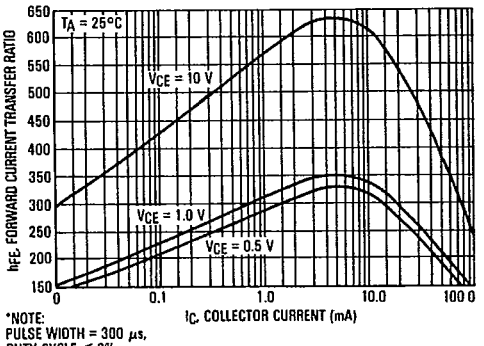
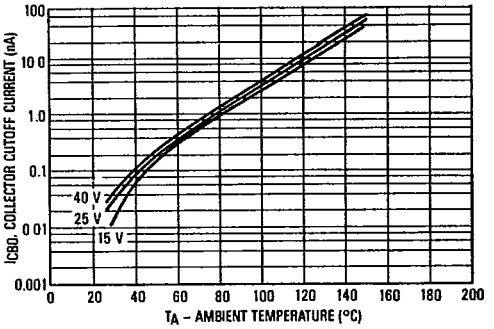
h_{FE} versus I_C

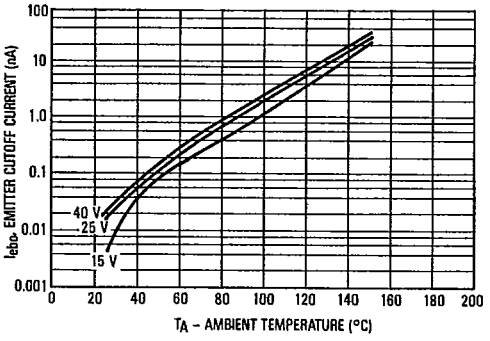


*NOTE:
PULSE WIDTH = 300 μs,
DUTY CYCLE ≤ 2%

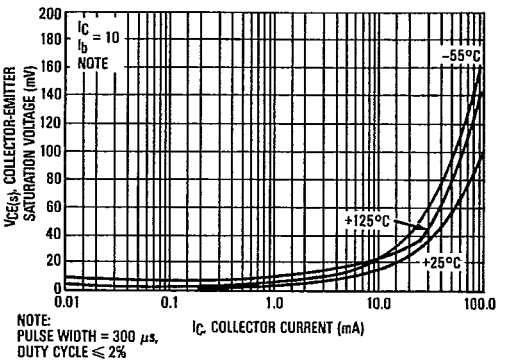
I_{CBO} versus T_A



I_{ebo} versus T_A



$V_{CE(s)}$ versus I_C



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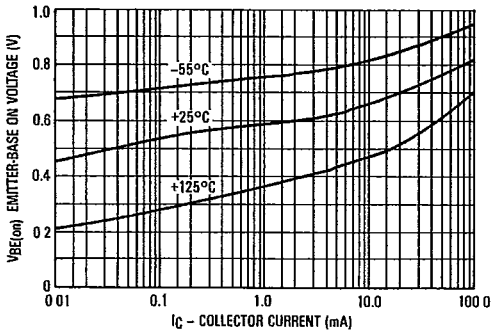
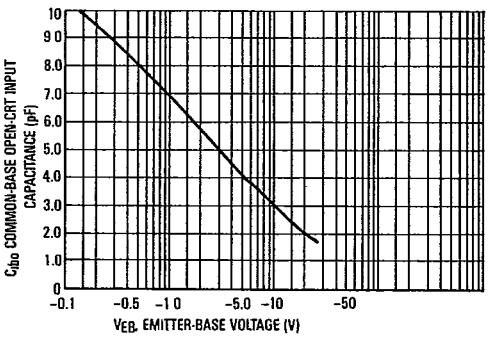
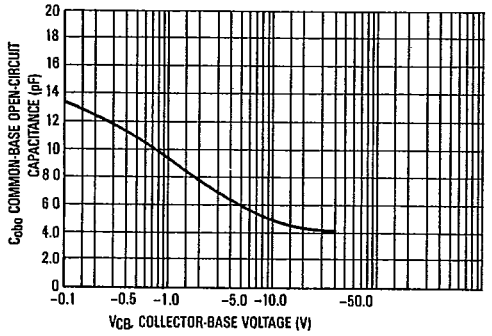
$V_{BE(on)}$ versus I_C



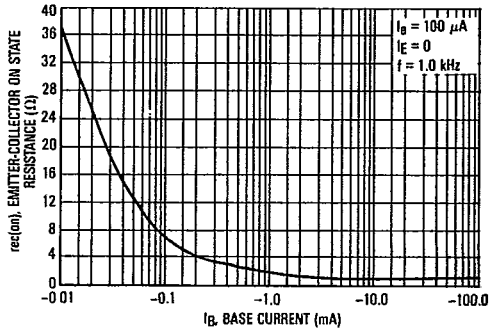
C_{ibo} versus V_{EB}



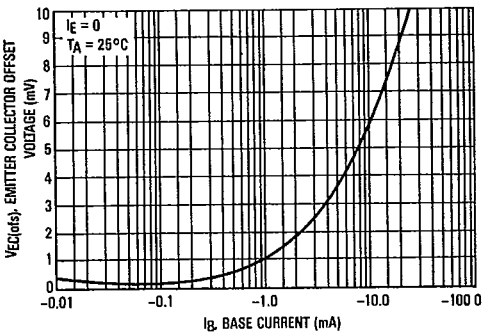
C_{obo} versus V_{CB}



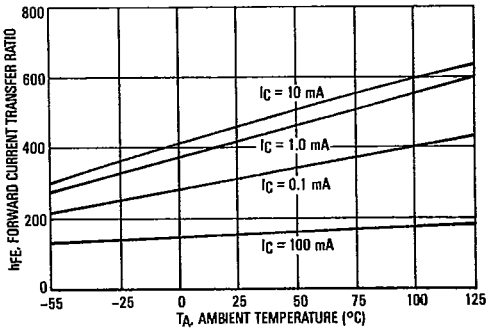
rec(on) versus I_B



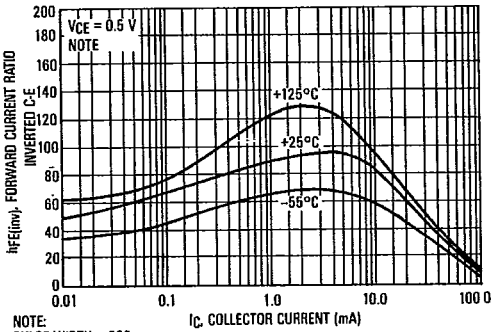
$V_{EC(ofs)}$ versus I_B



h_{FE} versus T_A



$h_{FE(inv)}$ versus I_C



NOTE:
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DUTY CYCLE ≤ 2%

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