

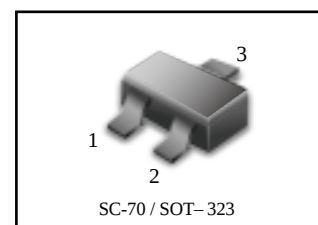
General Purpose Transistors PNP Silicon

● FEATURES

We declare that the material of product compliant with RoHS requirements and Halogen Free.

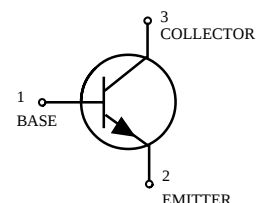
● DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
2N3906U	2A	3000/Tape&Reel



● MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-Emitter Voltage	V _{CEO}	-40	Vdc
Collector-Base Voltage	V _{CBO}	-40	Vdc
Emitter-Base Voltage	V _{EBO}	-5	Vdc
Collector Current — Continuous	I _C	-200	mAdc



● THERMAL CHARACTERISTICS

Total Device Dissipation, (Note 1) @ T _A = 25°C	P _D	150	mW
Thermal Resistance, Junction-to-Ambient	R _{ΘJA}	833	°C/W
Junction and Storage temperature	T _J , T _{stg}	-55~+150	°C

1. Device mounted on FR4 glass epoxy printed circuit board using the minimum recommended footprint.

● ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage(Note (I _C = -1.0 mAdc, I _B = 0)	V _{BR(CEO)}	-40	—	—	V
Collector-Base Breakdown Voltage (I _C = -10 μAdc, I _E = 0)	V _{BR(CBO)}	-40	—	—	V
Emitter-Base Breakdown Voltage (I _E = -10 μAdc, I _C = 0)	V _{BR(EBO)}	-5	—	—	V
Collector Cutoff Current (V _{CE} = -30 Vdc, V _{EB} = -3.0Vdc)	I _{CEX}	—	—	-50	nA
Base Cutoff Current (V _{CE} = -30 Vdc, V _{EB} = -3.0Vdc)	I _{BL}	—	—	-50	nA

2.Pulse Test: Pulse Width≤300 μs; Duty Cycle≤2.0%.

● ELECTRICAL CHARACTERISTICS (Ta= 25℃)(Continued)

ON CHARACTERISTICS (Note 1.)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain (I _C = -0.1 mA _{dc} , V _{CE} = -1.0 V _{dc}) (I _C = -1.0 mA _{dc} , V _{CE} = -1.0 V _{dc}) (I _C = -10 mA _{dc} , V _{CE} = -1.0 V _{dc}) (I _C = -50 mA _{dc} , V _{CE} = -1.0 V _{dc}) (I _C = -100 mA _{dc} , V _{CE} = -1.0 V _{dc})	h _{FE}	60 80 100 60 30	— — — — —	— — 300 — —	
Collector-Emitter Saturation Voltage(3) (I _C = -10 mA _{dc} , I _B = -1.0 mA _{dc}) (I _C = -50mA _{dc} , I _B = -5.0 mA _{dc})	V _{CE(sat)}	— —	— —	-0.25 -0.4	V
Base-Emitter Saturation Voltage (I _C = -10 mA _{dc} , I _B = -1.0 mA _{dc}) (I _C = -50mA _{dc} , I _B = -5.0 mA _{dc})	V _{BE(sat)}	-0.65 —	— —	-0.85 -0.95	V

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product (I _C = -10mA _{dc} , V _{CE} = -20V _{dc} , f = 100MHz)	f _T	250	—	—	MHz
Output Capacitance (V _{CB} = -5.0 V _{dc} , I _E = 0, f = 1.0 MHz)	C _{obo}	—	—	4.5	pF
Input Capacitance (V _{EB} = -0.5 V _{dc} , I _C = 0, f = 1.0 MHz)	C _{ibo}	—	—	10	pF
Input Impedance (V _{CE} = -10 V _{dc} , I _C = -1.0 mA _{dc} , f = 1.0 kHz)	h _{ie}	2	—	12	k Ω
Voltage Feedback Ratio (V _{CE} = -10 V _{dc} , I _C = -1.0 mA _{dc} , f = 1.0 kHz)	h _{re}	0.1	—	10	X 10 ⁻⁴
Small-Signal Current Gain (V _{CE} = -10 V _{dc} , I _C = -1.0 mA _{dc} , f = 1.0 kHz)	h _{fe}	100	—	400	
Output Admittance (V _{CE} = -10 V _{dc} , I _C = -1.0 mA _{dc} , f = 1.0 kHz)	h _{oe}	3	—	60	μmhos
Noise Figure (V _{CE} = -5V, I _C = -100μA, R _S = 1.0kΩ, f = 1.0kHz)	NF	—	—	4	dB

SWITCHING CHARACTERISTICS

Delay Time	(V _{CC} = -3.0 V _{dc} , V _{BE} = 0.5 V _{dc} , I _C = -10 mA _{dc} , I _{B1} = -1.0 mA _{dc})	t _d	—	—	35	ns
Rise Time		t _r	—	—	35	
Storage Time		t _s	—	—	225	
Fall Time		t _f	—	—	75	

3.Pulse Test: Pulse Width ≤300 μs; Duty Cycle ≤2.0%.

Electrical Characteristics Curves

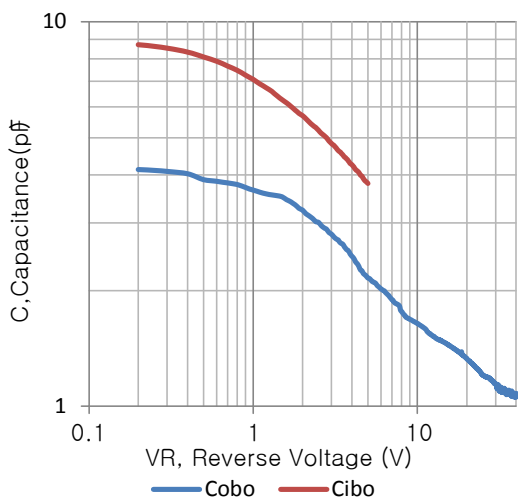


Figure 1. Capacitance

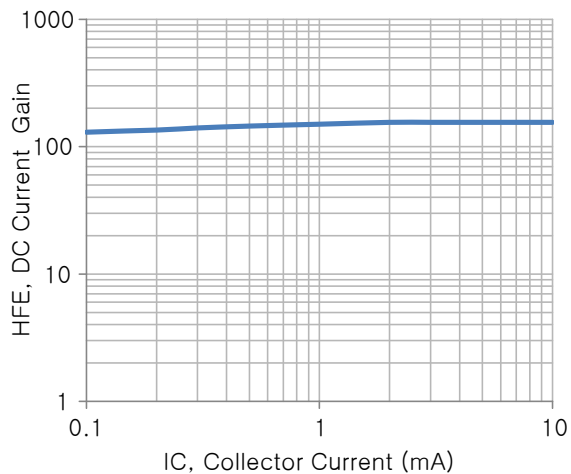


Figure 2. Current Gain

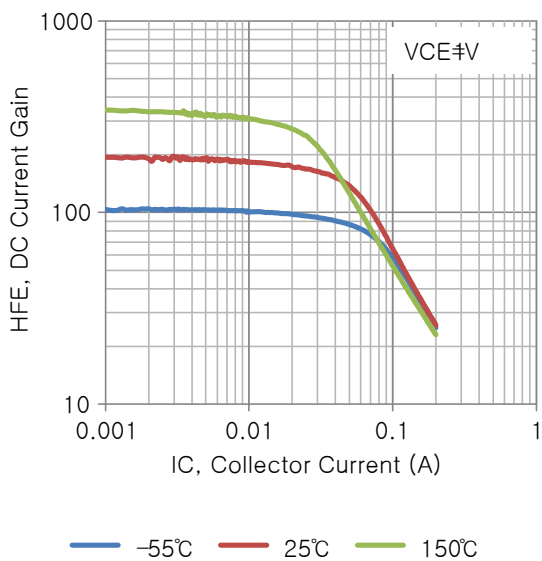


Figure 3. DC Current Gain

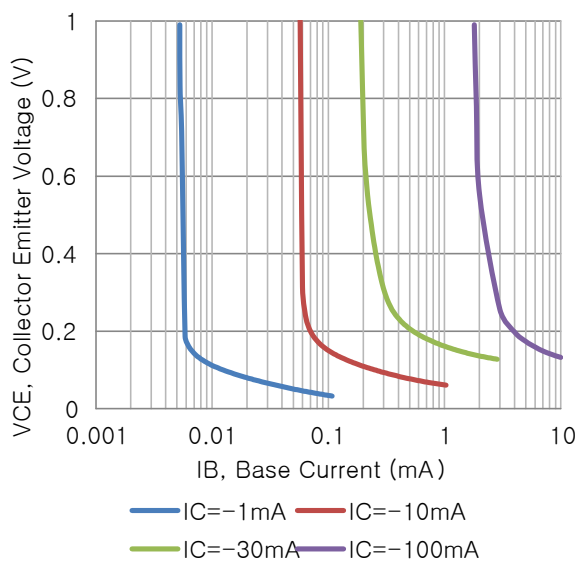


Figure 4. Collector Saturation Region

Electrical Characteristics Curves

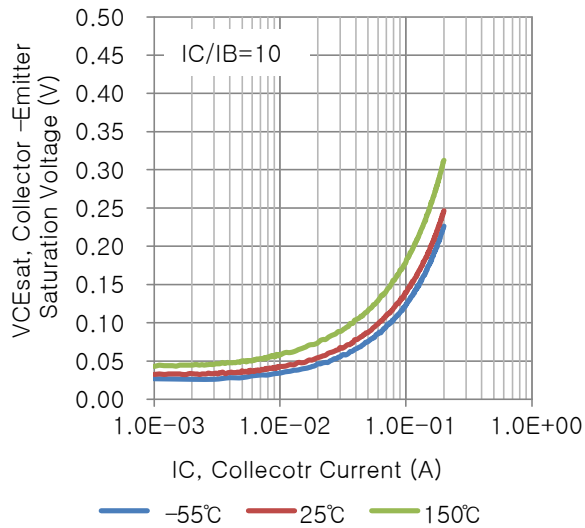


Figure 5. Collector Emitter Saturation Voltage vs. Collector Current

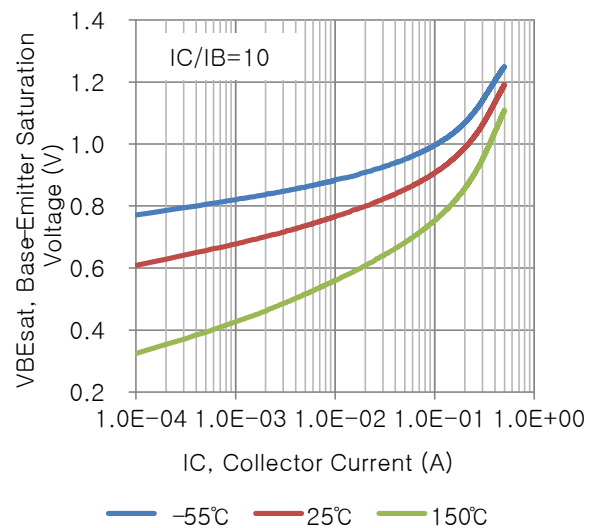


Figure 6. Base Emitter Saturation Voltage vs. Collector Current

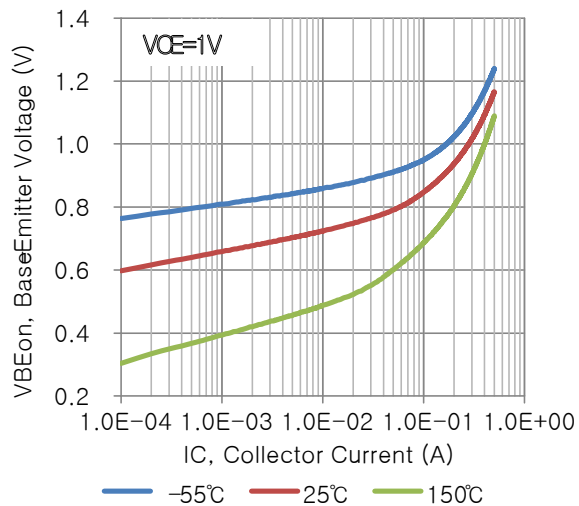
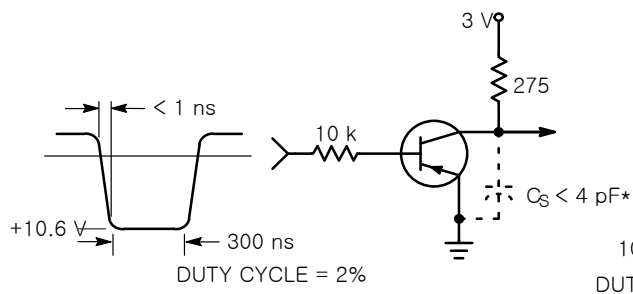


Figure 7. Base Emitter Voltage vs. Collector Current



* Total shunt capacitance of test jig and connectors

Figure 8. Delay and Rise Time Equivalent Test

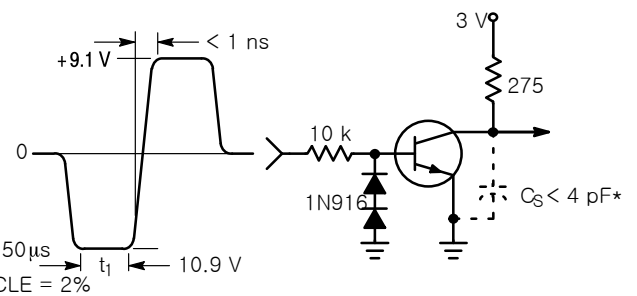
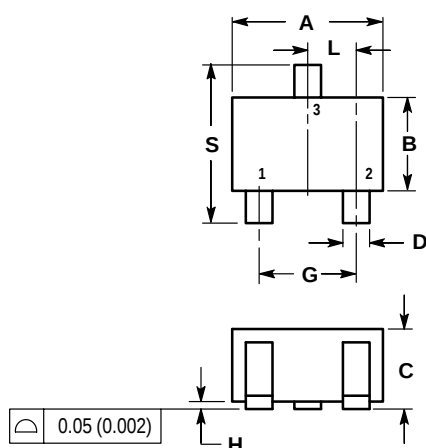


Figure 9. Storage and Fall Time Equivalent Test

SC-70 / SOT-323

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.032	0.040	0.80	1.00
D	0.012	0.016	0.30	0.40
G	0.047	0.055	1.20	1.40
H	0.000	0.004	0.00	0.10
J	0.004	0.010	0.10	0.25
K	0.017	REF	0.425	REF
L	0.026	BSC	0.650	BSC
N	0.028	REF	0.700	REF
S	0.079	0.095	2.00	2.40

