



# 2N3906

## PNP GENERAL PURPOSE SWITCHING TRANSISTOR

**VOLTAGE** 40 Volts    **POWER** 625 mWatts

TO-92    Unit: inch ( mm )

### FEATURES

- PNP epitaxial silicon, planar design
- Collector-emitter voltage  $V_{CE} = 40V$
- Collector current  $I_C = -200mA$
- Pb free product are available :99% Sn above can meet RoHS environment substance directive request

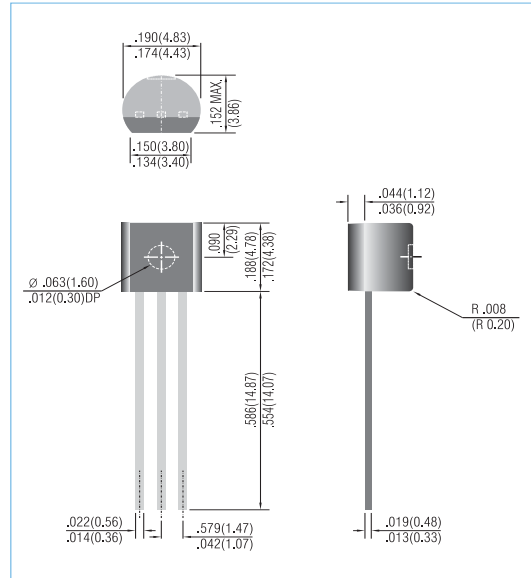
### MECHANICAL DATA

Case: TO-92

Terminals: Solderable per MIL-STD-750, Method 2026

Approx Weight : 0.02grams

Marking : S2A



### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Collector - Emitter Voltage	$V_{CEO}$	-40	V
Collector - Base Voltage	$V_{CBO}$	-40	V
Emitter - Base Voltage	$V_{EBO}$	-5.0	V
Collector Current - Continuous	$I_C$	-200	mA
Max Power Dissipation	$P_{TOT}$	625	mW
Storage Temperature	$T_{STG}$	-55 to 150	°C
Junction Temperature	$T_J$	-55 to 150	°C

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNITS
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C / W

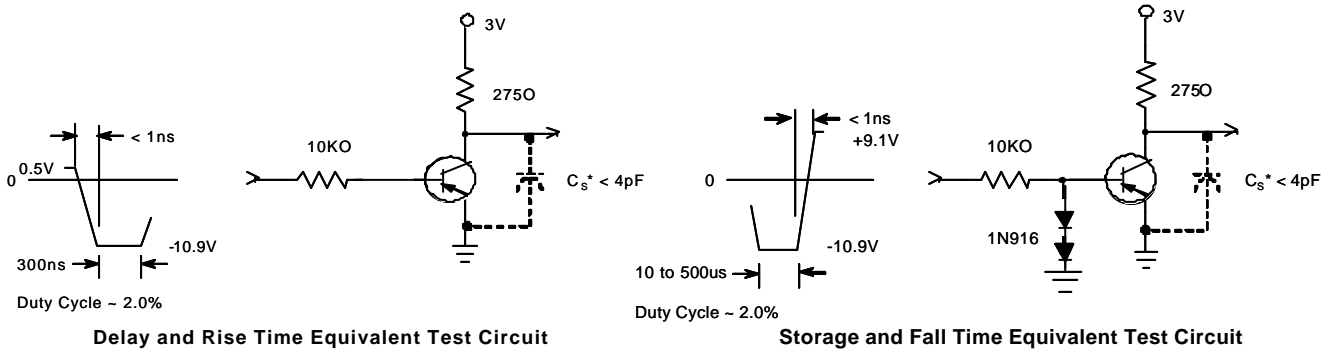


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## ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1.0mA, I_B=0$	-40	-	-	V	
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-40	-	-	V	
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	-5.0	-	-	V	
Base Cutoff Current	$I_{BL}$	$V_{CE}=-30V, V_{EB}=-3.0V$	-	-	-50	nA	
Collector Cutoff Current	$I_{CEX}$	$V_{CE}=-30V, V_{EB}=-3.0V$	-	-	-50	nA	
DC Current Gain	$h_{FE}$	$I_C=-0.1mA, V_{CE}=-1.0V$ $I_C=-1.0mA, V_{CE}=-1.0V$ $I_C=-10mA, V_{CE}=-1.0V$ $I_C=-50mA, V_{CE}=-1.0V$ $I_C=-100mA, V_{CE}=-1.0V$	60 80 100 60 30	- - - - -	- - 300 - -	-	
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-10mA, I_B=-1.0mA$ $I_C=-50mA, I_B=-5.0mA$	- -	- -	-0.25 -0.4	V	
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=-10mA, I_B=-1.0mA$ $I_C=-50mA, I_B=-5.0mA$	-0.65 -	- -	-0.85 -0.95	V	
Collector-Base Capacitance	$C_{CBO}$	$V_{CB}=-5.0V, I_E=0, f=1MHz$	-	-	4.5	pF	
Emitter - Base Capacitance	$C_{EBO}$	$V_{CB}=-0.5V, I_C=0, f=1MHz$	-	-	10	pF	
Delay Time	$t_d$	$V_{CC}=-3V, V_{BE}=-0.5V,$ $I_C=-10mA, I_B=-1mA$	-	-	35	ns	
Rise Time	$t_r$		-	-	35	ns	
Storage Time	$t_s$		$V_{CC}=-3V, I_C=-10mA$ $I_{B1}=I_{B2}=-1mA$	-	-	225	ns
Fall Time	$t_f$		-	-	75	ns	

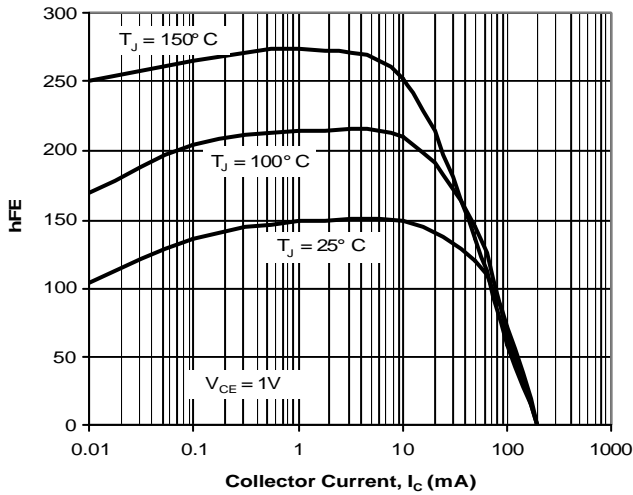
## SWITCHING TIME EQUIVALENT TEST CIRCUITS



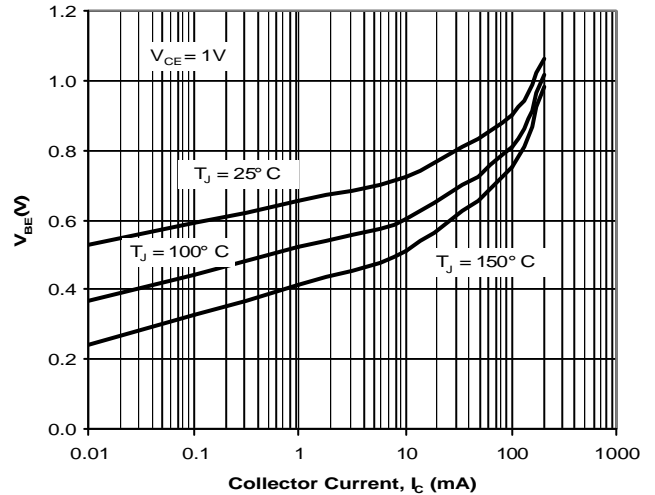


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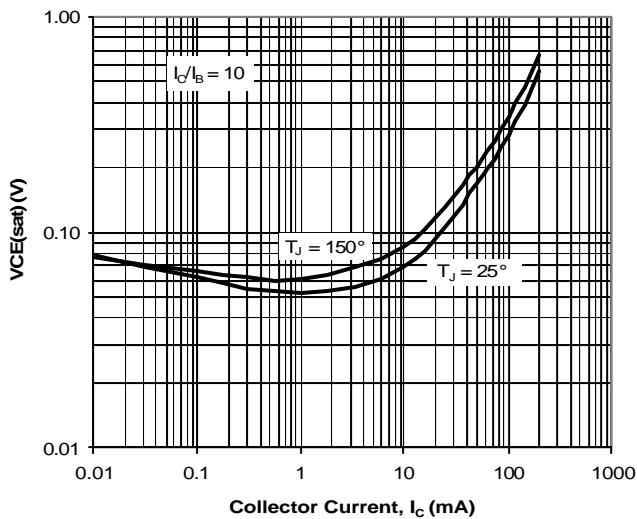
## ELECTRICAL CHARACTERISTICS CURVES



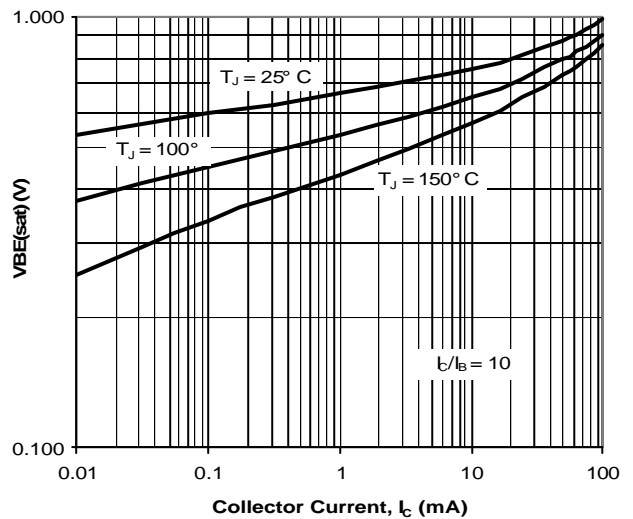
**Fig. 1. Typical  $h_{FE}$  vs. Collector Current**



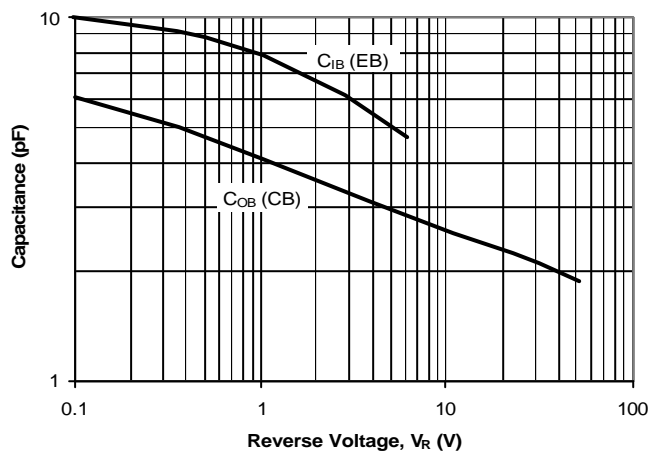
**Fig. 2. Typical  $V_{BE}$  vs. Collector Current**



**Fig. 3. Typical  $V_{CE(sat)}$  vs. Collector Current**



**Fig. 4. Typical  $V_{BE(sat)}$  vs. Collector Current**

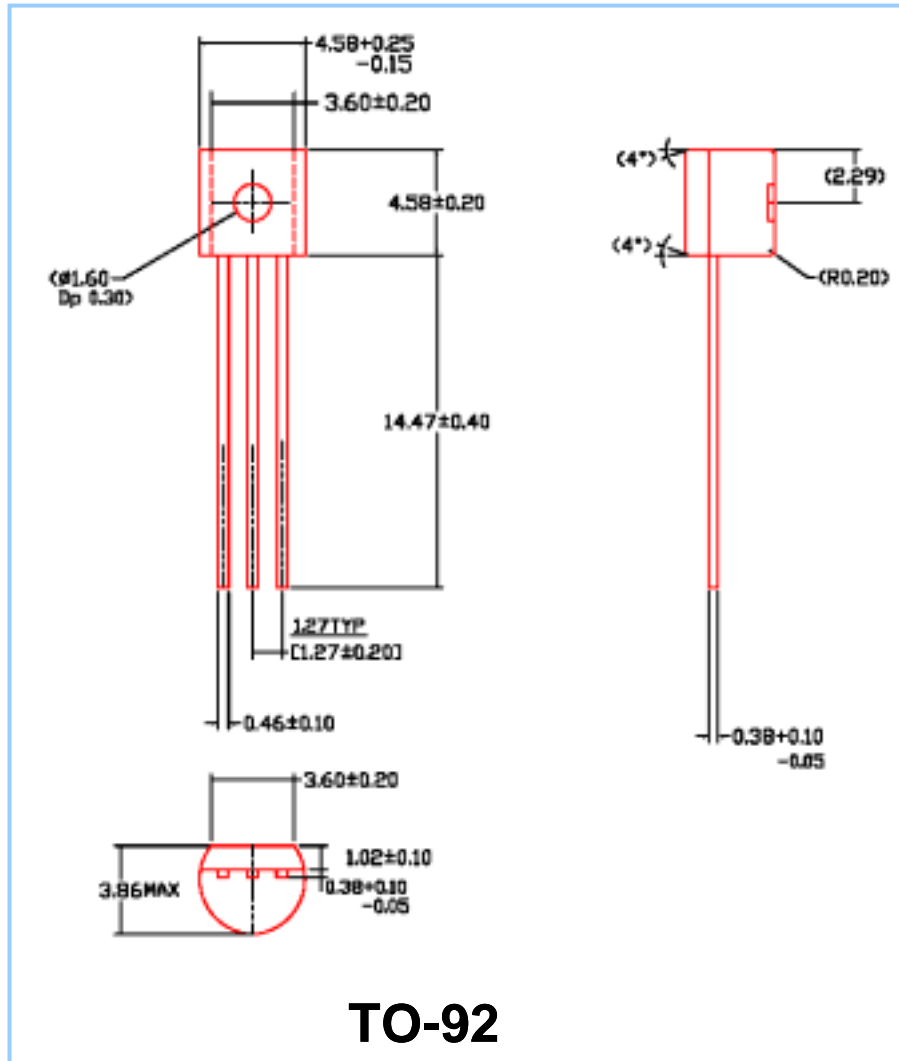


**Fig. 5. Typical Capacitances vs. Reverse Voltage**



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## TO-92 Case Outline



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