



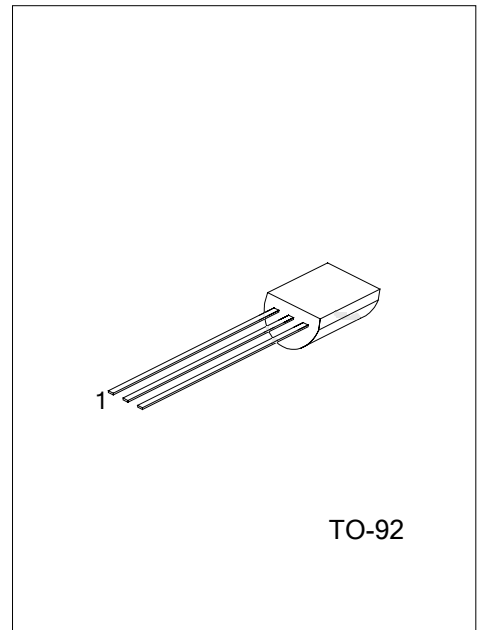
PN2907A

PNP EPITAXIAL SILICON TRANSISTOR

PNP GENERAL PURPOSE AMPLIFIER

■ DESCRIPTION

This UTC **PN2907A** is designed for use as a general purpose amplifier and switch requiring collector currents to 500 mA.



TO-92

* Pb-free plating product number: PN2907AL

■ PIN CONFIGURATION

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PIN NO.	PIN NAME
1	Emitter
2	Base
3	Collector

■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead free		
PN2907A-T92-B	PN2907AL-T92-B	TO-92	Tape Box
PN2907A-T92-K	PN2907AL-T92-K	TO-92	Bulk

■ ABSOLUTE MAXIMUM RATINGS (Note 1) (Ta=25°C, unless otherwise specified.)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V _{CEO}	60	V
Collector-Base Voltage	V _{CBO}	60	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current-Continuous	I _C	800	mA
Power Dissipation	P _D	625	mW
Derate above 25°C		5.0	mW/°C
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-40 ~ +150	°C

Note 1: These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Note 2: These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Note 3: All voltage (V) and currents (V) are negative polarity for PNP transistors.

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage*	V _{(BR)CEO}	I _C =10mA, I _B =0	60			V
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C =10μA, I _E =0	60			V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E =10μA, I _C =0	5			V
Base Cutoff Current	I _B	V _{CB} =30V, V _{EB} =0.5V			50	nA
Collector Cutoff Current	I _{CEX}	V _{CE} =30V, V _{BE} =0.5V			50	nA
Collector Cutoff Current	I _{CBO}	V _{CB} =50V, I _E =0			0.02	μA
		V _{CB} =50V, I _E =0, T _a =150°C			20	μA
ON CHARACTERISTICS						
DC Current Gain	h _{FE}	I _C =0.1mA, V _{CE} =10V	75			
		I _C =1.0 mA, V _{CE} =10V	100			
		I _C =10 mA, V _{CE} =10V	100			
		I _C =150 mA, V _{CE} =10V*	100		300	
		I _C =500 mA, V _{CE} =10V*	50			
Collector-Emitter Saturation Voltage*	V _{CE(sat)}	I _C =150mA, I _B =15mA			0.4	V
		I _C =500mA, I _B =50mA			1.6	V
Base-Emitter Saturation Voltage	V _{BE(sat)}	I _C =150mA, I _B =15mA*			1.3	V
		I _C =500mA, I _B =50mA			2.6	V
SMALL SIGNAL CHARACTERISTICS						
Current Gain – Bandwidth Product	f _T	I _C =50mA, V _{CE} =20V, f=100MHz	200			MHz
Output Capacitance	C _{obo}	V _{CB} =10V, I _E =0, f=100kHz			8	pF
Input Capacitance	C _{ibo}	V _{EB} =2V, I _C =0, f=100kHz			30	pF
SWITCHING CHARACTERISTICS						
Turn-on Time	t _{ON}	V _{CC} =30V, I _C =150mA I _{B1} =15mA			45	ns
Delay Time	t _{DLY}				10	ns
Rise Time	t _R				40	ns
Turn-off Time	t _{OFF}	V _{CC} =6V, I _C =150mA I _{B1} =I _{B2} =15mA			100	ns
Storage Time	t _S				80	ns
Fall Time	t _F				30	ns

* Pulse Test: Pulse Width ≤ 300ms, Duty Cycle ≤ 2.0%

Note: All voltages (V) and currents (A) are negative polarity for PNP transistors

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction- Ambient	Θ_{JA}	200	°C/W
Thermal Resistance Junction- Case	Θ_{Jc}	83.3	

■ TEST CIRCUIT

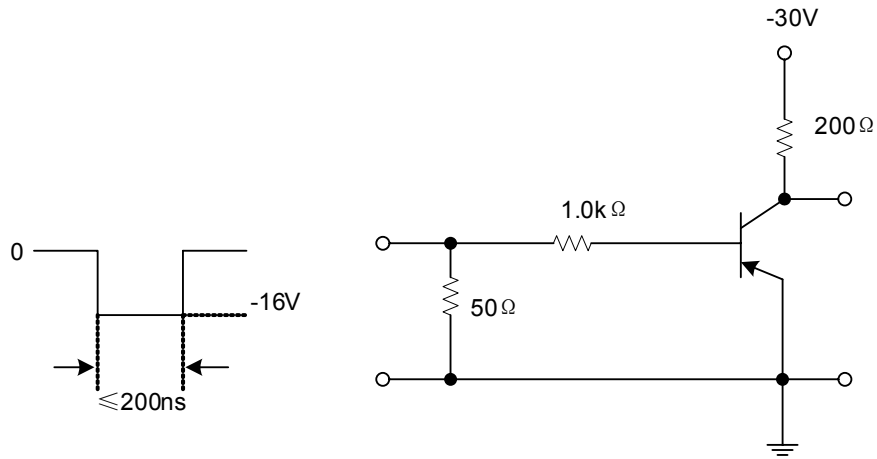
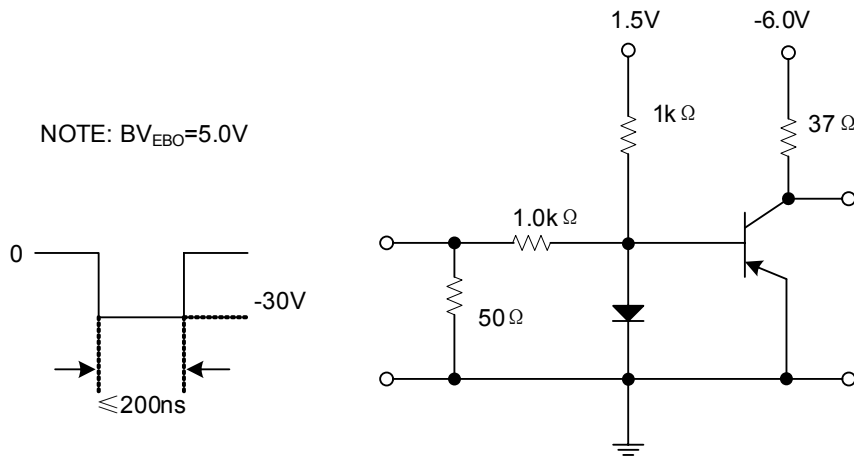


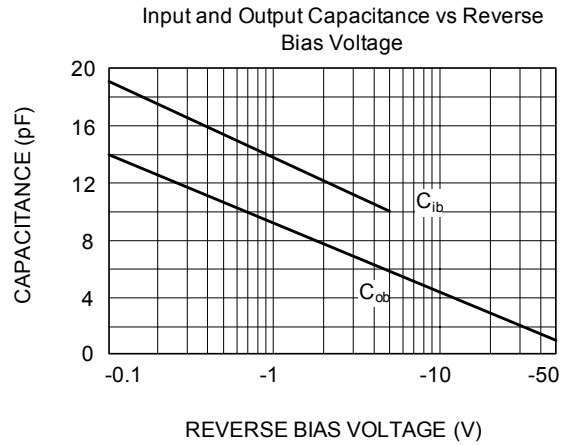
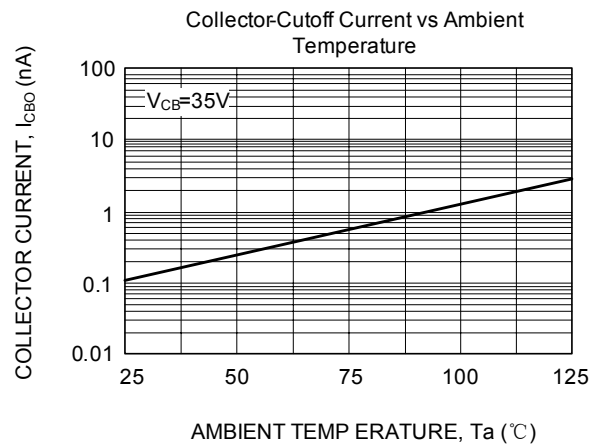
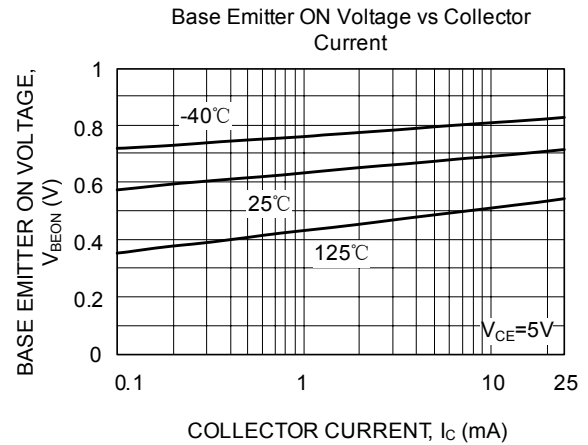
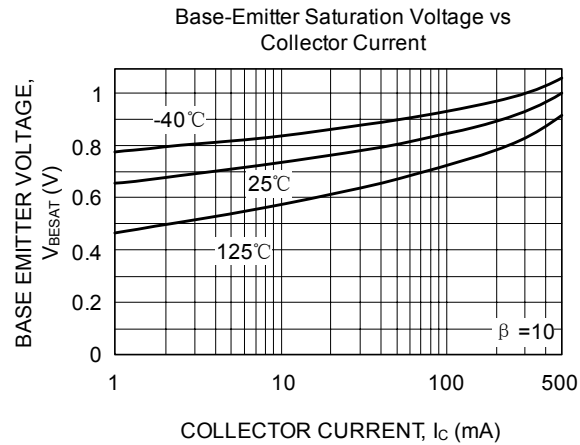
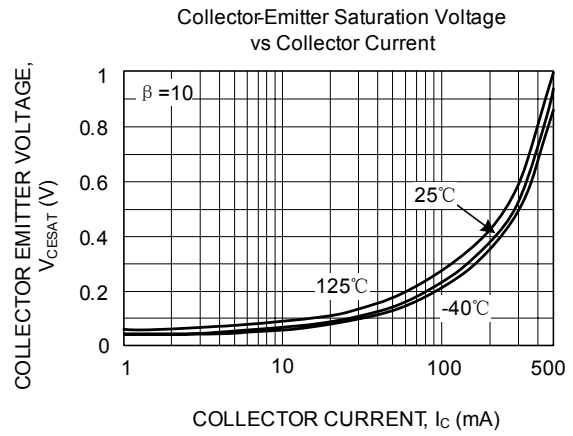
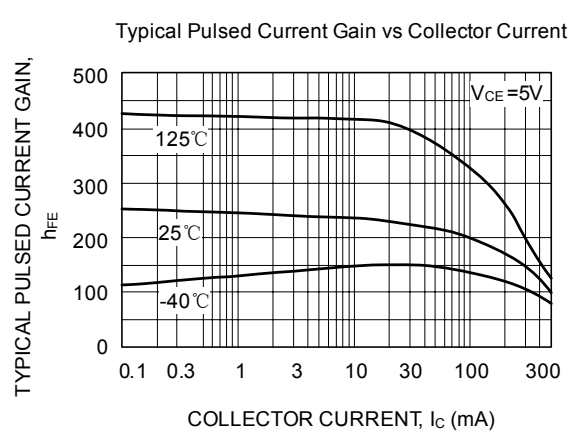
Fig. 1 Saturated Turn-On Switching Time Test Circuit



NOTE: $BV_{EBO}=5.0V$

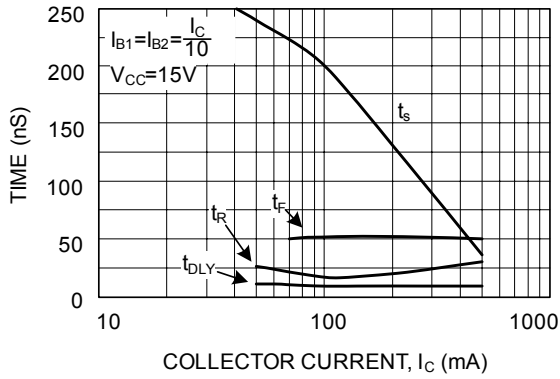
Fig. 2 Saturated Turn-Off Switching Time Test Circuit

■ TYPICAL CHARACTERISTICS

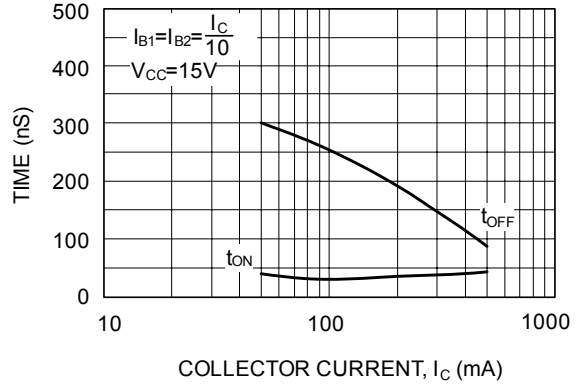


■ TYPICAL CHARACTERISTICS(cont.)

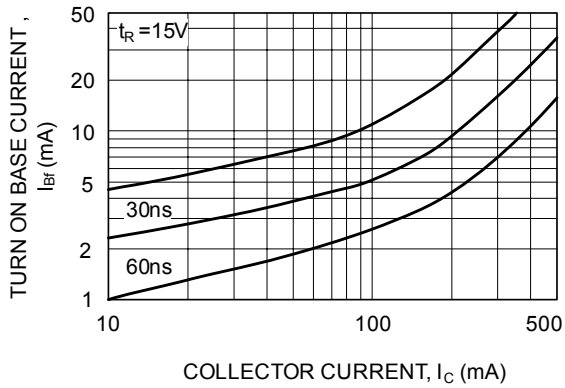
Switching Times vs Collector Current



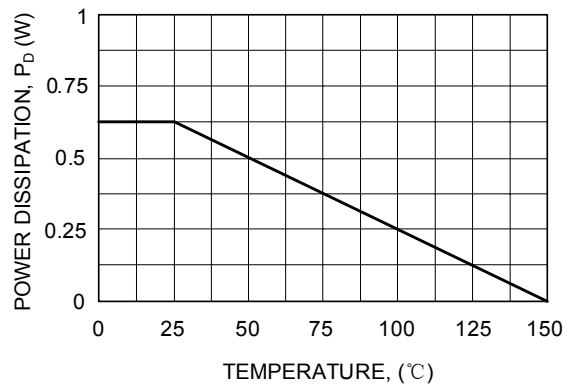
Turn On and Turn Off Times vs Collector Current



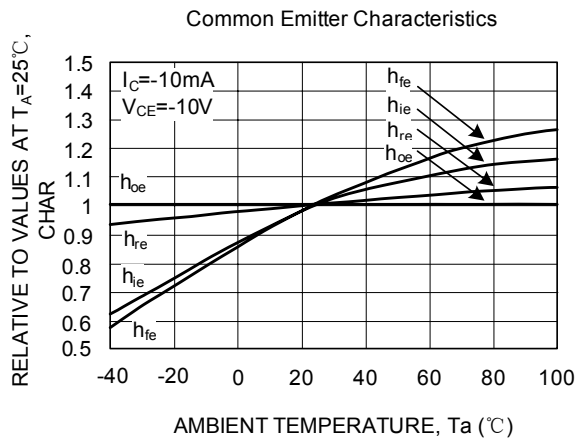
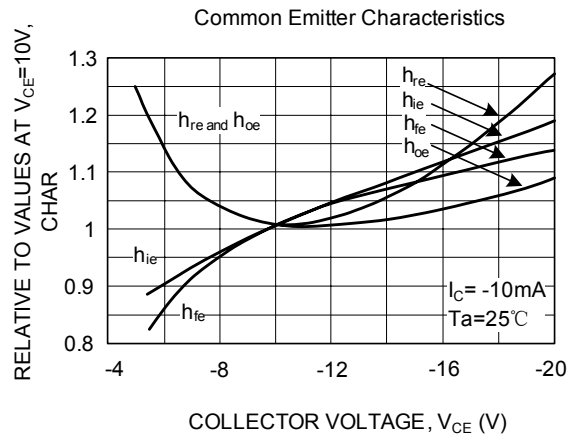
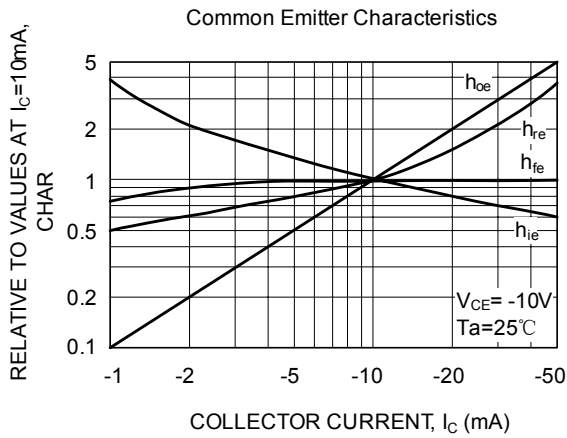
Rise Time vs Collector and Turn On Base Currents



Power Dissipation vs Ambient Temperature



■ TYPICAL CHARACTERISTICS FOR COMMON EMITTER (f=1kHz)



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