



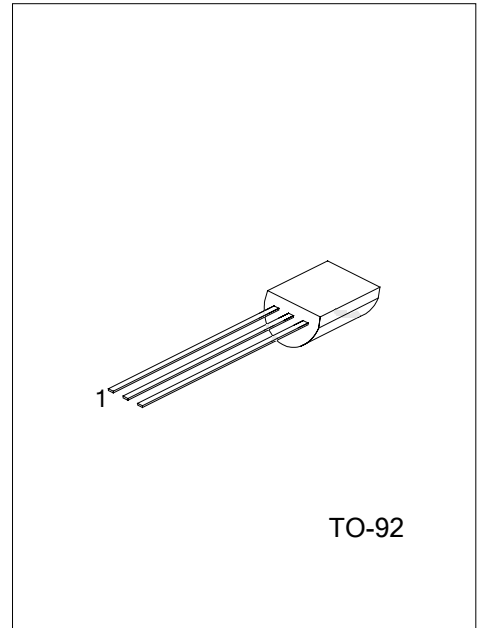
PN2907A

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.



* Pb-free plating product number: PN2907AL

■ PIN CONFIGURATION

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	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	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
		$V_{CB}=50V, I_E=0, T_a=150^{\circ}C$			20	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	$I_C=0.1mA, V_{CE}=10V$	75			
		$I_C=1.0mA, V_{CE}=10V$	100			
		$I_C=10mA, V_{CE}=10V$	100			
		$I_C=150mA, V_{CE}=10V^*$	100		300	
		$I_C=500mA, V_{CE}=10V^*$	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 $\leq 300ms$, Duty Cycle $\leq 2.0\%$

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

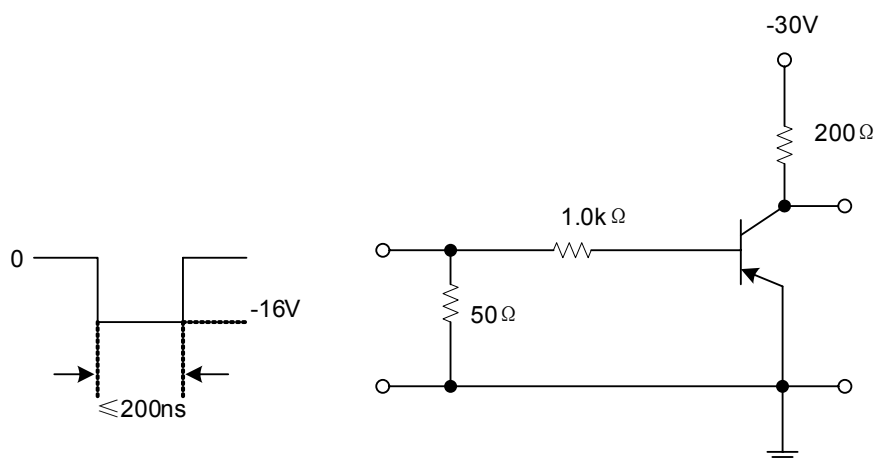


Fig. 1 Saturated Turn-On Switching Time Test Circuit

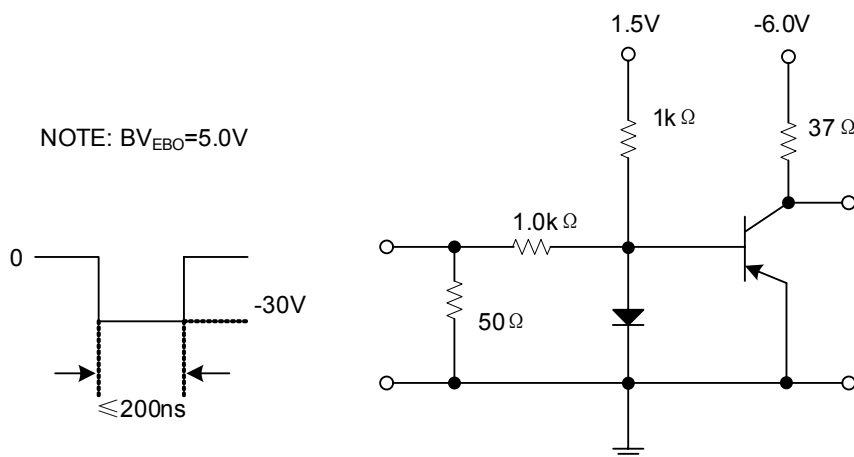
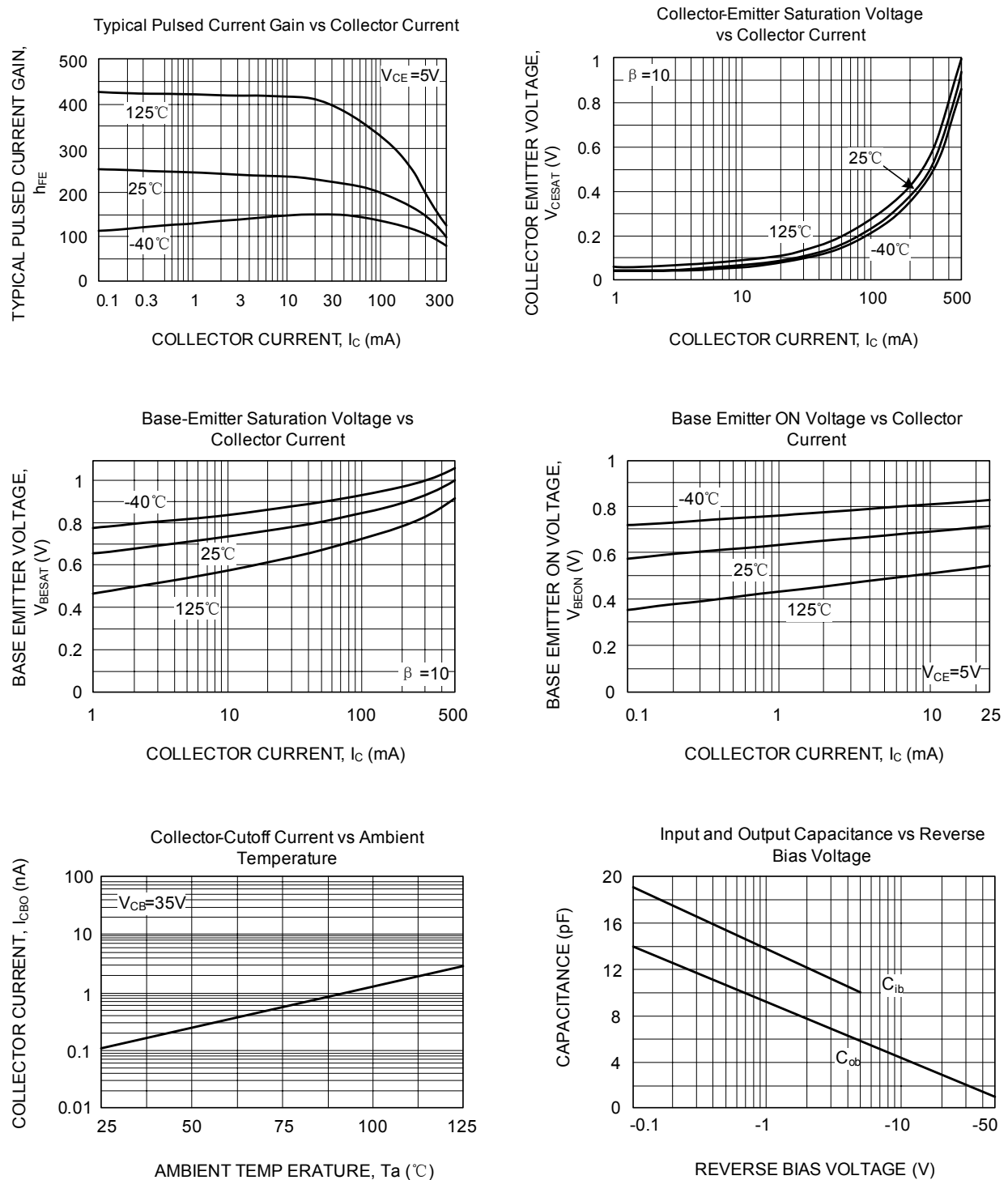
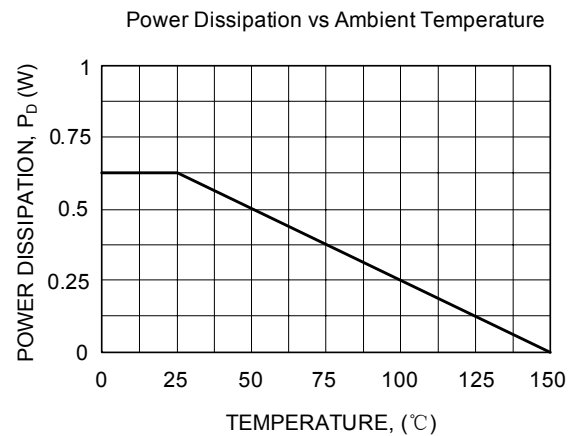
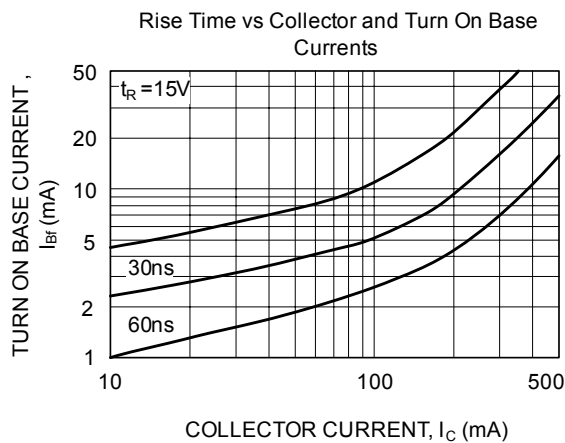
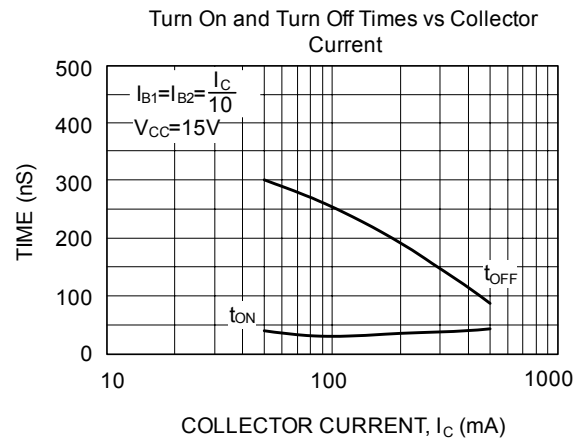
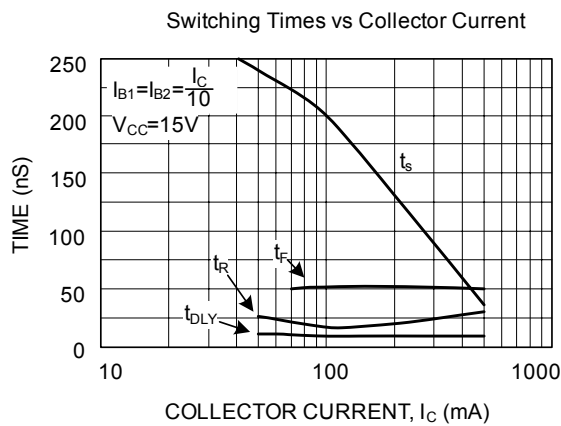


Fig. 2 Saturated Turn-Off Switching Time Test Circuit

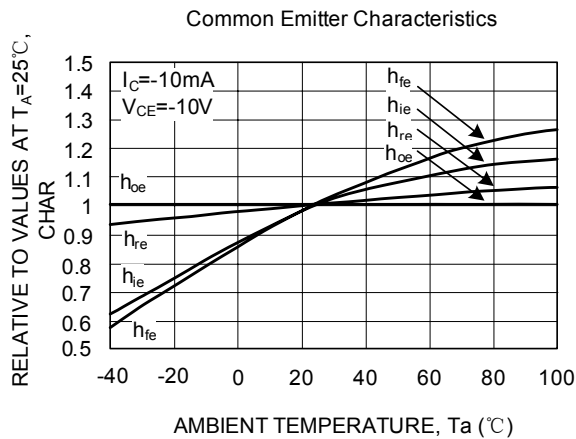
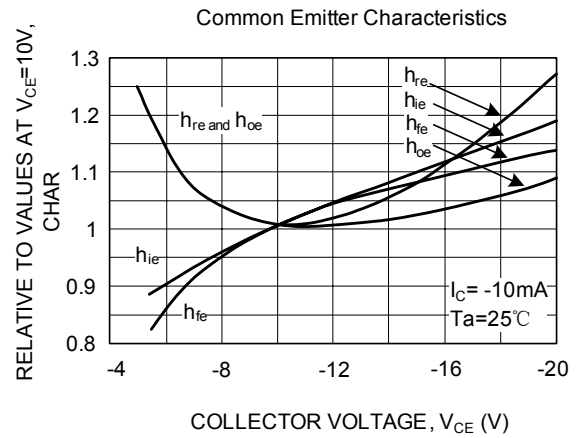
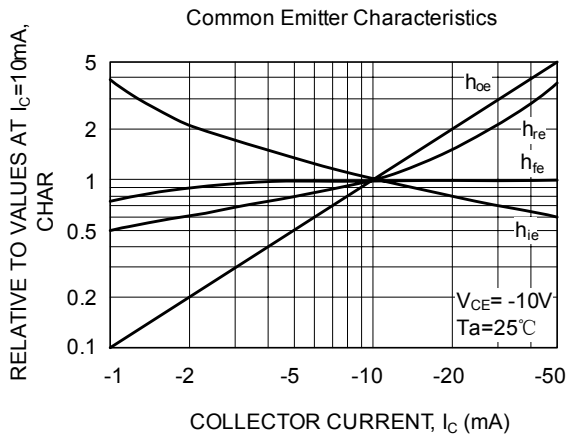
■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(cont.)



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



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