



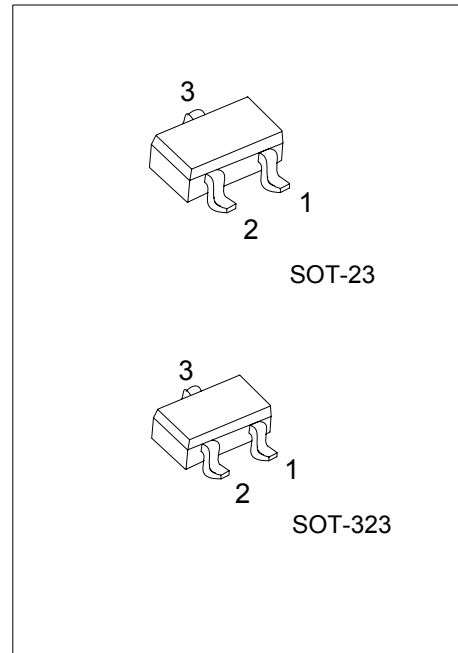
MMBT2907A

PNP EPITAXIAL PLANAR TRANSISTOR

PNP GENERAL PURPOSE AMPLIFIER

■ FEATURES

This UTC **MMBT2907A** is designed for use as a general purpose amplifier and switch requiring collector currents to 500 mA.



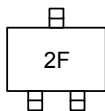
*Pb-free plating product number: MMBT2907AL

■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
MMBT2907A-AE3-6-R	MMBT2907AL-AE3-6-R	SOT-23	E	B	C	Tape Reel
MMBT2907A-AL3-6-R	MMBT2907AL-AL3-6-R	SOT-323	E	B	C	Tape Reel

<p>MMBT2907L-AE3-6-R</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AE3: SOT-23, AL3: SOT-323 (4) L: Lead Free Plating, Blank: Pb/Sn</p>
--------------------------	---

■ MARKING



MMBT2907A

PNP EPITAXIAL PLANAR TRANSISTOR

■ ABSOLUTE MAXIMUM RATING (NOET 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
Operating Junction and Storage Temperature	T _J , T _{STG}	-55 ~ +150	°C

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

- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction-Case	SOT-23	357	°C/W
	SOT-323	455	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage*	BV _{CEO}	I _C =-10mA, I _B =0	-60			V
Collector-Base Breakdown Voltage	BV _{CBO}	I _C =-10μA, I _E =0	-60			V
Emitter-Base Breakdown Voltage	BV _{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 =-150 mA, I _B =-15mA			-0.4	V
		I _C =-500 mA, I _B =-50mA			-1.6	V
Base-Emitter Saturation Voltage	V _{BE(SAT)}	I _C =-150 mA, I _B =-15mA*			-1.3	V
		I _C =-500 mA, 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 _d				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
THERMAL CHARACTERISTICS						
Total Device Dissipation	P _D	SOT-23			350	mW
		SOT-323			275	mW

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

Note: Device mounted on FR-4 PCB 1.6" x 1.6" x 0.06."



■ TEST CIRCUIT

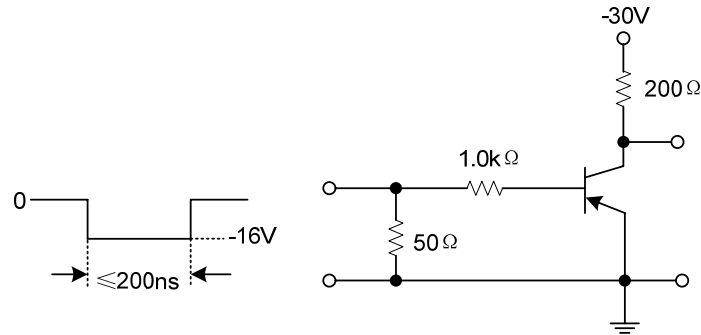


Fig 1. Saturated Turn-On Switching Time Test Circuit

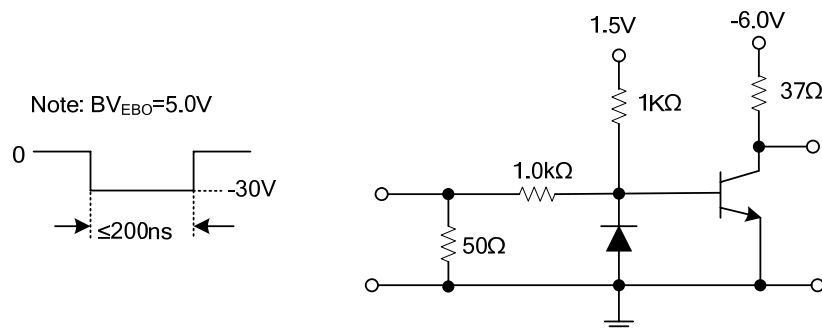
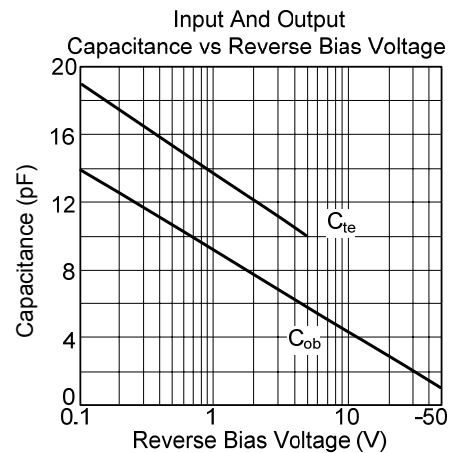
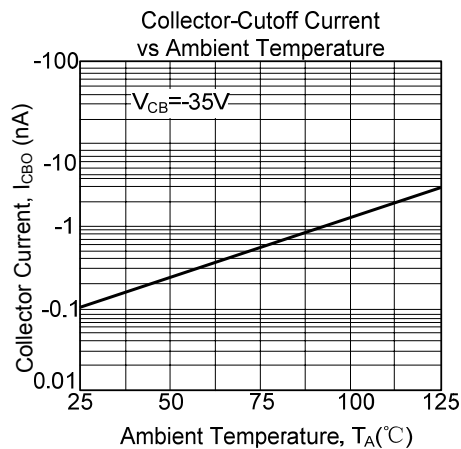
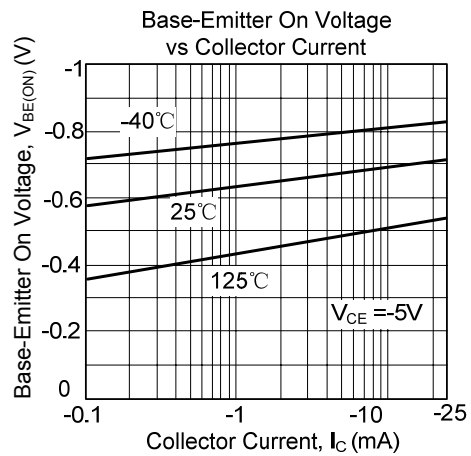
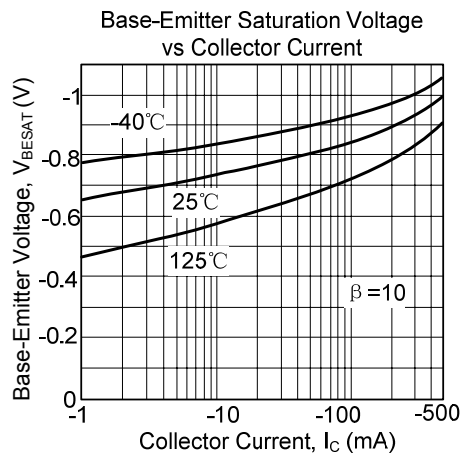
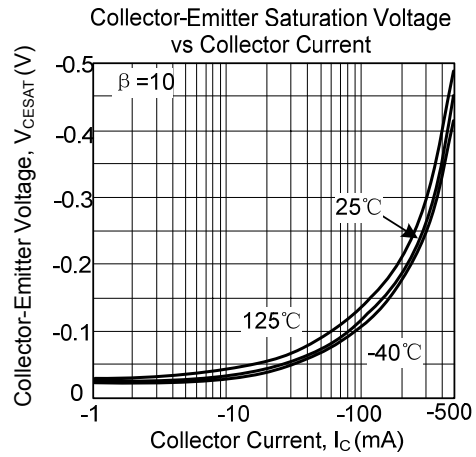
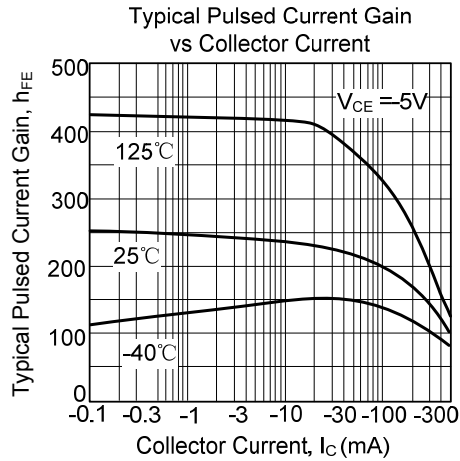
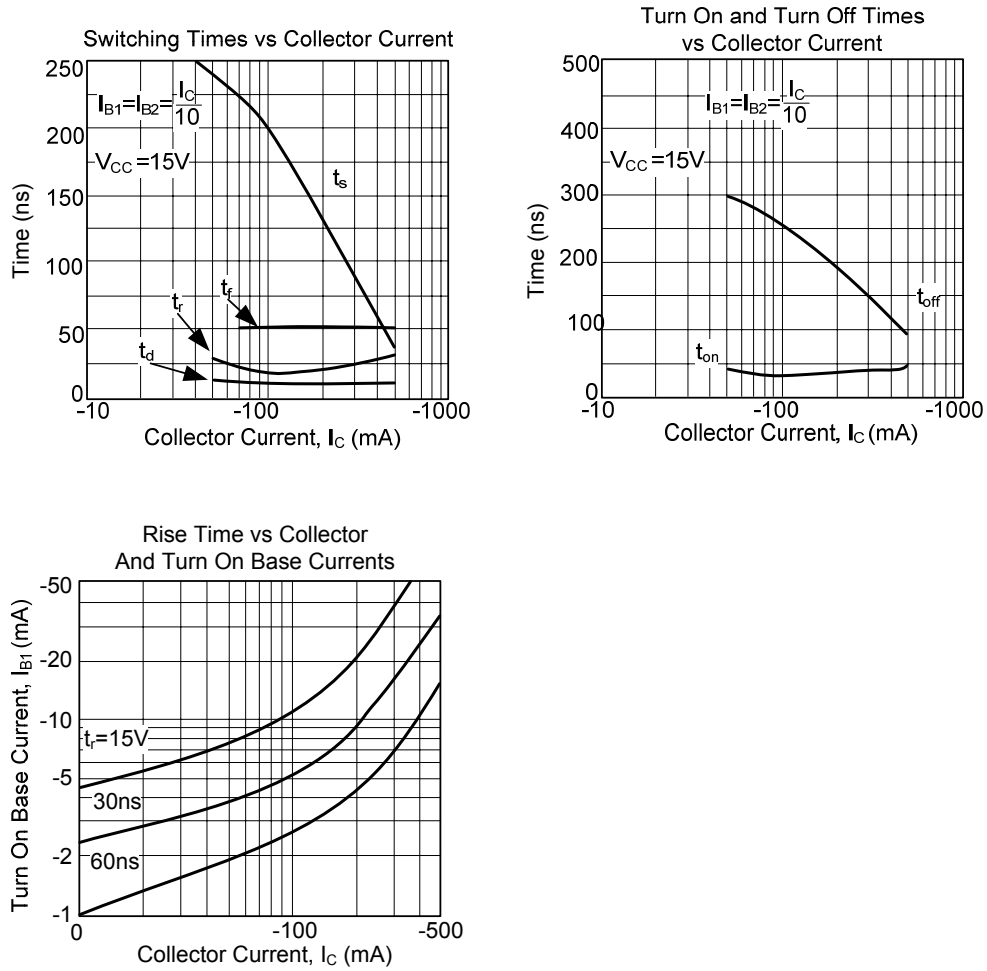


Fig 2. Saturated Turn-Off Switching Time Test Circuit

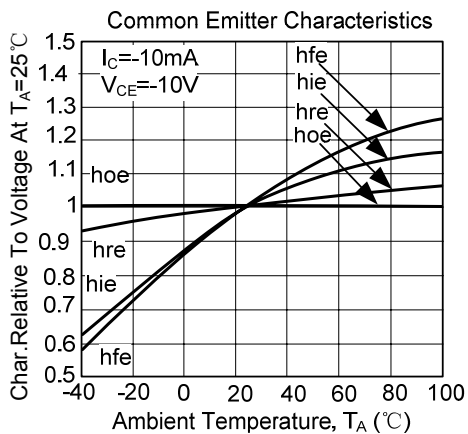
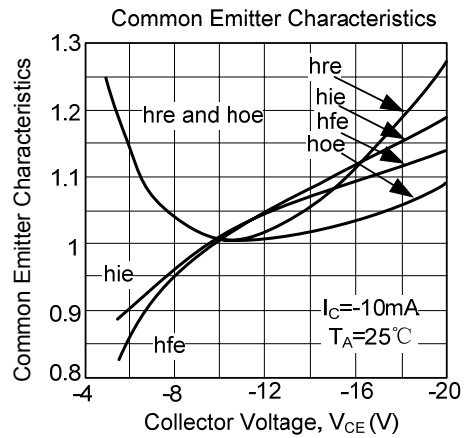
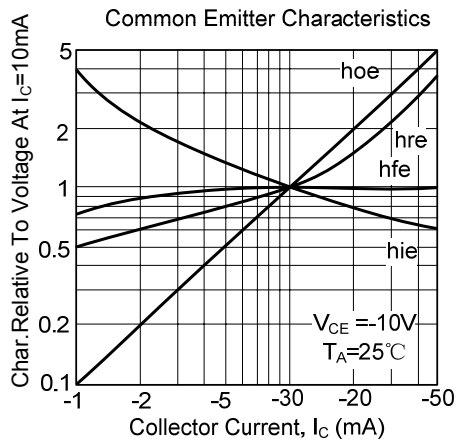
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL COMMON EMITTER CHARACTERISTICS (f=1kHz)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.