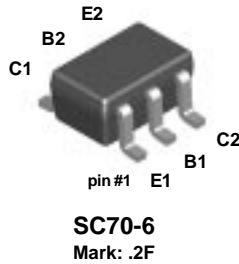
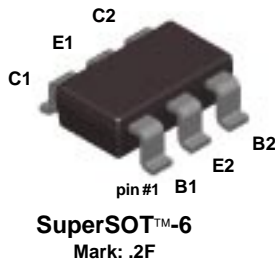


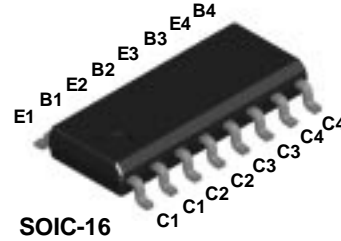
FFB2907A



FMB2907A



MMPQ2907A



PNP Multi-Chip General Purpose Amplifier

This device is designed for use as a general purpose amplifier and switch requiring collector currents to 500 mA. Sourced from Process 63.

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	600	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

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

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max			Units
		FFB2907A	FMB2907A	MMPQ2907A	
P_D	Total Device Dissipation Derate above 25°C	300	700	1,000	mW
		2.4	5.6	8.0	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Effective 4 Die Each Die	415	180		$^\circ\text{C}/\text{W}$
				125	$^\circ\text{C}/\text{W}$
				240	$^\circ\text{C}/\text{W}$

PNP Multi-Chip General Purpose Amplifier

(continued)

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10\text{ mA}, I_B = 0$	60			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\text{ }\mu\text{A}, I_C = 0$	5.0			V
I_B	Base Cutoff Current	$V_{CB} = 30\text{ V}, V_{EB} = 0.5\text{ V}$			50	nA
I_{CEX}	Collector Cutoff Current	$V_{CE} = 30\text{ V}, V_{BE} = 0.5\text{ V}$			50	nA
I_{CBO}	Collector Cutoff Current	$V_{CB} = 50\text{ V}, I_E = 0$ $V_{CB} = 50\text{ V}, I_E = 0, T_A = 125^\circ\text{C}$			0.02 20	μA μA

ON CHARACTERISTICS

h_{FE}	DC Current Gain	$I_C = 0.1\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 1.0\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA}, V_{CE} = 10\text{ V}^*$ $I_C = 500\text{ mA}, V_{CE} = 10\text{ V}^*$	75 100 100 100 50		300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage*	$I_C = 150\text{ mA}, I_B = 15\text{ mA}$ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$			0.4 1.6	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{ mA}, I_B = 15\text{ mA}^*$ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$			1.3 2.6	V V

SMALL SIGNAL CHARACTERISTICS

f_T	Current Gain - Bandwidth Product	$I_C = 50\text{ mA}, V_{CE} = 20\text{ V},$ $f = 100\text{ MHz}$		250		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0,$ $f = 100\text{ kHz}$		6.0		pF
C_{ibo}	Input Capacitance	$V_{EB} = 2.0\text{ V}, I_C = 0,$ $f = 100\text{ kHz}$		12		pF

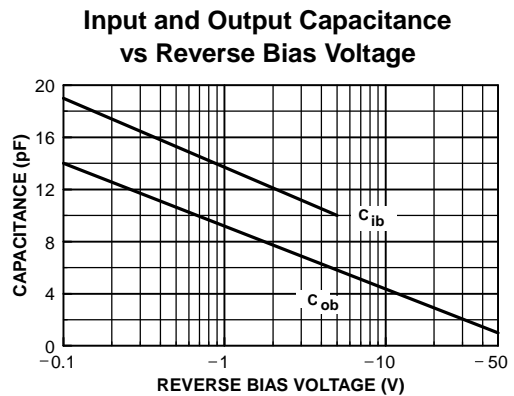
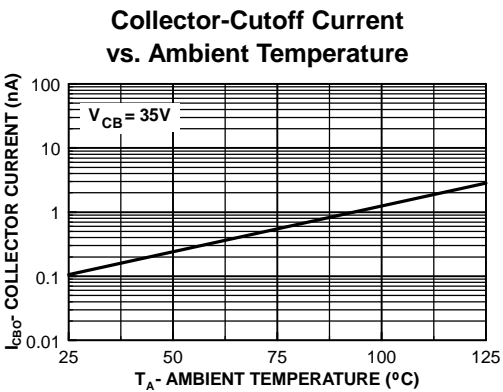
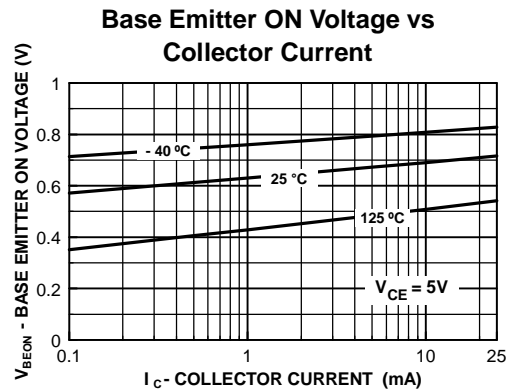
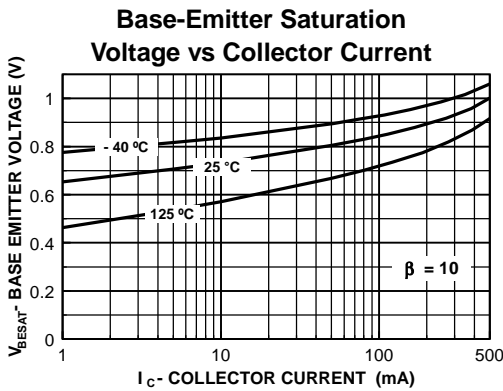
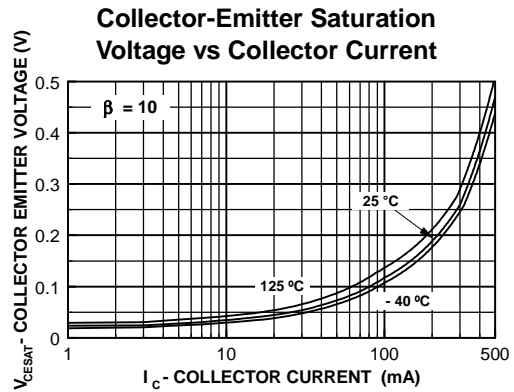
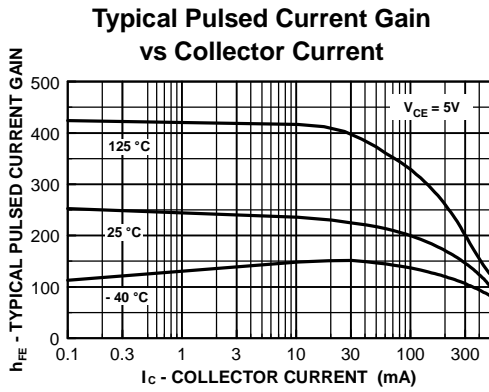
SWITCHING CHARACTERISTICS

t_{on}	Turn-on Time	$V_{CC} = 30\text{ V}, I_C = 150\text{ mA},$ $I_{B1} = 15\text{ mA}$		30		ns
t_d	Delay Time			8.0		ns
t_r	Rise Time			20		ns
t_{off}	Turn-off Time	$V_{CC} = 6.0\text{ V}, I_C = 150\text{ mA}$ $I_{B1} = I_{B2} = 15\text{ mA}$		80		ns
t_s	Storage Time			60		ns
t_f	Fall Time			20		ns

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

FFB2907A / FMBT2907A / MNPQ2907A

Typical Characteristics



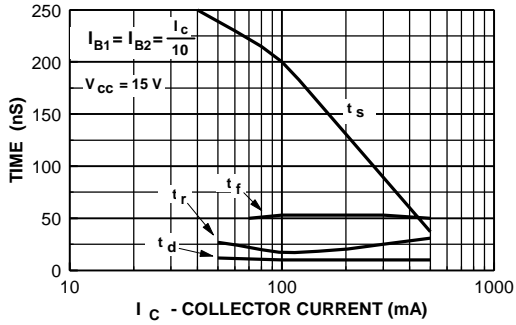
PNP Multi-Chip General Purpose Amplifier

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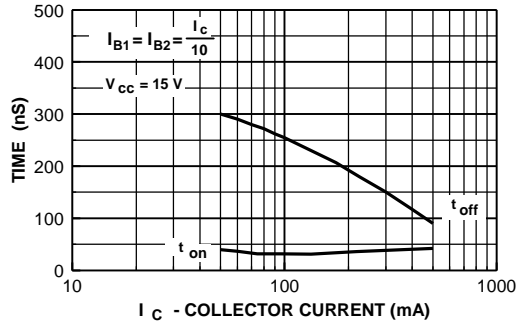
FFB2907A / FMBT2907A / MMMPQ2907A

Typical Characteristics (continued)

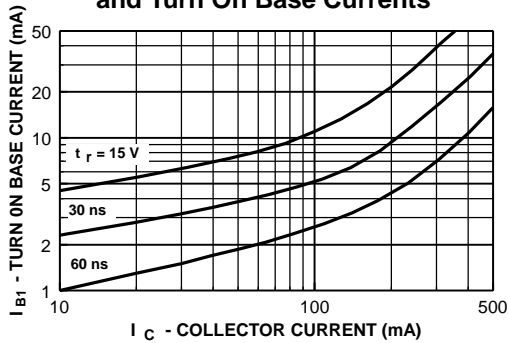
Switching Times vs Collector Current



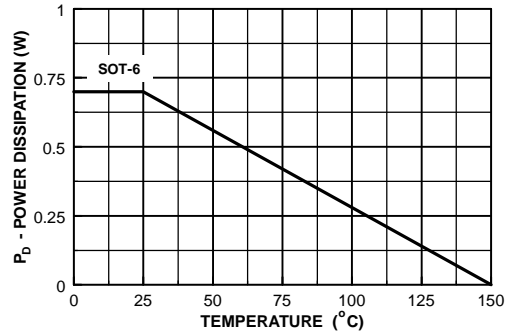
Turn On and Turn Off Times vs Collector Current



Rise Time vs Collector and Turn On Base Currents



Power Dissipation vs Ambient Temperature



Test Circuits

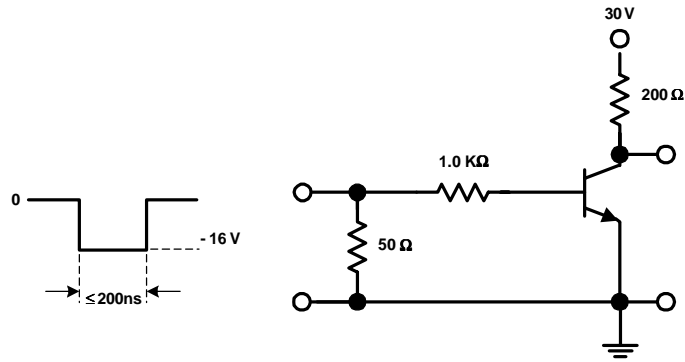


FIGURE 1: Saturated Turn-On Switching Time Test Circuit

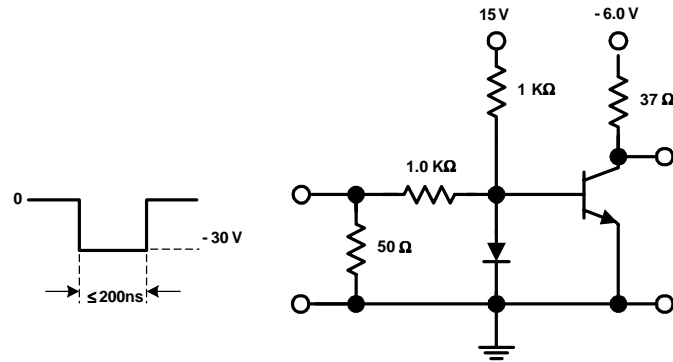


FIGURE 2: Saturated Turn-Off Switching Time Test Circuit