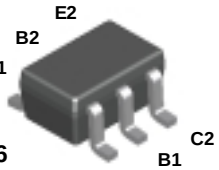
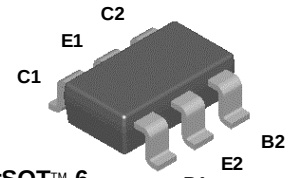
FAIRCHILD SEMICONDUCTOR™

FFB2227A FMB2227A



SC70-6
Mark: .AA
Dot denotes pin #1

TRANSISTOR TYPE	
C1 B1 E1	NPN
C2 B2 E2	PNP



SuperSOT™-6
Mark: .001
Dot denotes pin #1

NPN & PNP General Purpose Amplifier

This complementary device is for use as a medium power amplifier and switch requiring collector currents up to 500 mA. Sourced from Process 19 and 63. See FFB2222A (NPN) and FFB2907A (PNP) for characteristics.

Absolute Maximum Ratings*

T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	30	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°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.
3) All voltages (V) and currents (A) are negative polarity for PNP transistors.

Thermal Characteristics

T_A = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		FFB2227A	FMB2227A	
P_D	Total Device Dissipation Derate above 25°C	300 2.4	700 5.6	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	415	180	°C/W

NPN & PNP General Purpose Amplifier
(continued)

Electrical Characteristics
T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 10 mA, I_B = 0	30			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	5.0			V
I_{CBO}	Collector Cutoff Current	V_{CB} = 50 V, I_E = 0			30	nA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 3.0 V, I_C = 0			30	nA
ON CHARACTERISTICS						
h_{FE}	DC Current Gain	I_C = 1.0 mA, V_{CE} = 10 V I_C = 10 mA, V_{CE} = 10 V I_C = 150 mA, V_{CE} = 10 V* I_C = 300mA, V_{CE} = 10 V*	50 75 100 30			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage*	I_C = 150 mA, I_B = 15 mA I_C = 300 mA, I_B = 30 mA			0.4 1.4	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage*	I_C = 150 mA, I_B = 15 mA			1.3	V
SMALL SIGNAL CHARACTERISTICS						
f_T	Current Gain - Bandwidth Product	I_C = 50 mA, V_{CE} = 20 V, f = 100 MHz		250		MHz
C_{obo}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 100 kHz		4.0		pF
C_{ibo}	Input Capacitance	V_{EB} = 2.0 V, I_C = 0, f = 100 kHz		12		pF
NF	Noise Figure	I_C = 100 µA, V_{CE} = 10 V, R_S = 1.0 kΩ, f = 1.0 kHz		2.0		dB
SWITCHING CHARACTERISTICS						
t_{on}	Turn-on Time	V_{CC} = 30 V, I_C = 150 mA,		30		ns
t_d	Delay Time	I_{B1} = 15 mA		8.0		ns
t_r	Rise Time			20		ns
t_{off}	Turn-off Time	V_{CC} = 6.0 V, I_C = 150 mA		80		ns
t_s	Storage Time	I_{B1} = I_{B2} = 15 mA		60		ns
t_f	Fall Time			20		ns

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

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

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POP™
PowerTrench®
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Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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