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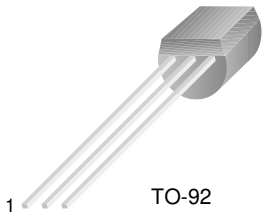
FAIRCHILD SEMICONDUCTOR®

September 2007

MPS6513
NPN General Purpose Amplifier

- This device is designed as a general purpose amplifier and switch.
- The useful dynamic range extends to 100mA as a switch and to 100MHz as an amplifier.
- Sourced from Proces 23.



TO-92

1. Emitter 2. Base 3. Collector

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	4	V
I_C	Collector Current (DC)	200	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ 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.

Thermal Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06".

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Voltage	I_C = 10 μA	40			V
BV_{CEO}	Collector-Emitter Voltage	I_C = 0.5 mA	30			V
BV_{EBO}	Emitter-Base Voltage	I_E = 10 μA	4			V
I_{CBO}	Collector-Base Cut-off Current	V_{CB} = 30 V, T = 25 °C T = 60 °C			0.05 1.0	μA
h_{FE}	DC Current Gain	V_{CE} = 10V, I_C = 2mA V_{CE} = 10V, I_C = 100mA	90 60		180	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 50 mA, I_B = 5 mA			0.5	V
C_{ob}	Output Capacitance	V_{CB} = 5V, f = 1.0 MHz			3.5	pF

NOTES:

1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. These ratings are based on a maximum junction temperature of 150degrees C.

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Definition of Terms

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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; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice 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 to improve design.
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