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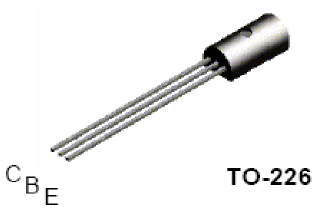
MPSW01
NPN General Purpose Amplifier

Features

- This device is designed for general purpose medium power amplifiers
- Sourced from process 37



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	40	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	1.0	A
P_D	Total Device Dissipation Derate about 25°C	1.0 8.0	W mW/°C
T_J , T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

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

Note :

1) These ratings are based on a maximum junction temperature 150 ‘C

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case*	50	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambien*	125	°C/W

* Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead min. 6cm^2

Electrical Characteristics (Note) T_a = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	MIN	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 = 100 uA, I_E = 0	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 100 uA, I_C = 0	5.0		V
I_{CBO}	Collector-Cutoff Current	V_{CB} = 30 V, I_E = 0		0.1	uA
I_{EBO}	Emitter-Cutoff Current	V_{EB} = 3.0 V, I_C = 0		0.1	uA
On Characteristics					
h_{FE}	DC Current Gain	I_C = 10 mA, V_{CE} = 1.0 V	55		
		I_C = 100 mA, V_{CE} = 1.0 V	60		
		I_C = 1.0 A, V_{CE} = 1.0 V	50		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage *	I_C = 1.0A, I_B = 100 mA		0.5	V
$V_{BE(on)}$	Emitter-Base On Voltage *	I_C = 1.0A, V_{CE} = 1.0 V		1.2	V
Small Signal Characteristics					
f_T	Small-Signal Current Gain	I_C = 50 mA, V_{CE} = 10 V, f = 20 MHz	50		MHz
C_{cb}	Collector-Base Capacitance	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz		20	pF

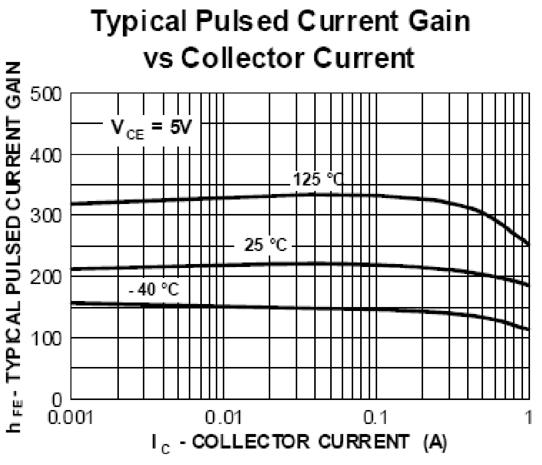
Note :

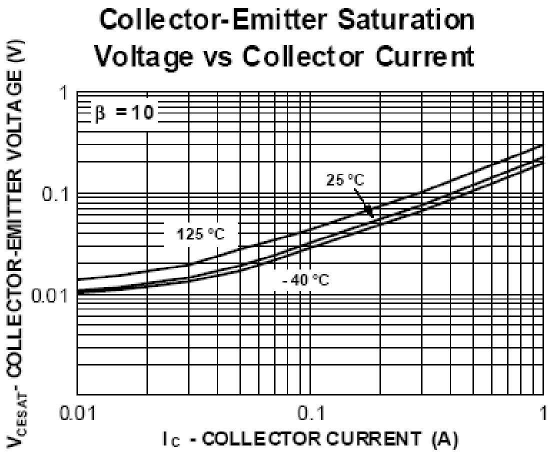
1) These ratings are based on a maximum junction temperature 150 'C

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

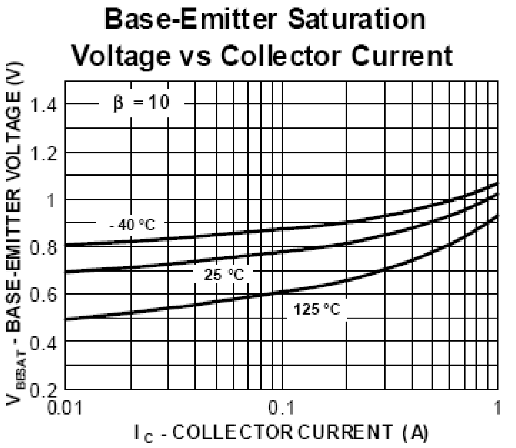
3) *Pulse Test: Pulse Width≤300μs, Duty Cycle≤1.0%

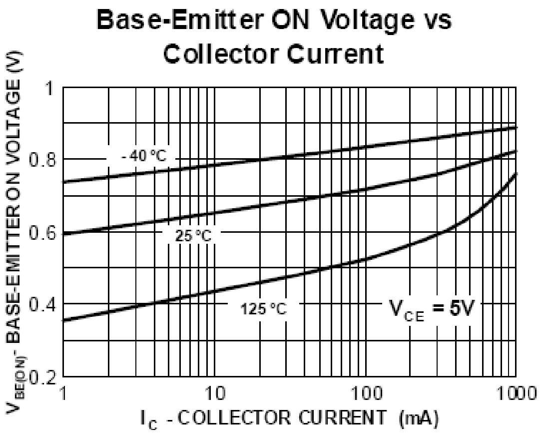
Typical Characteristics

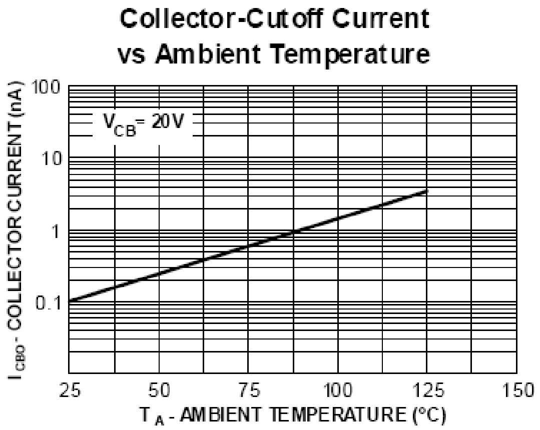


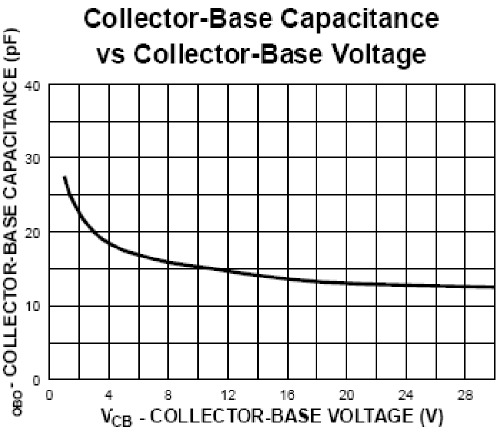


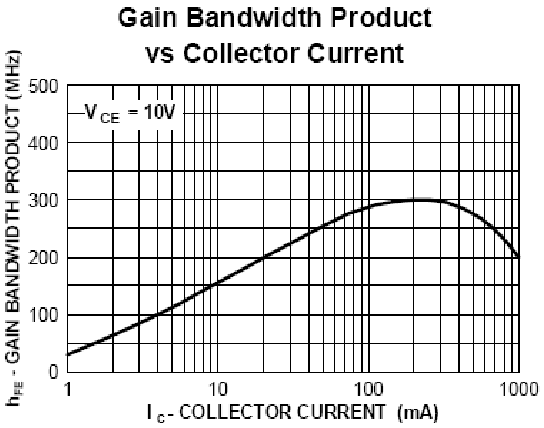
Typical Characteristics (continued)

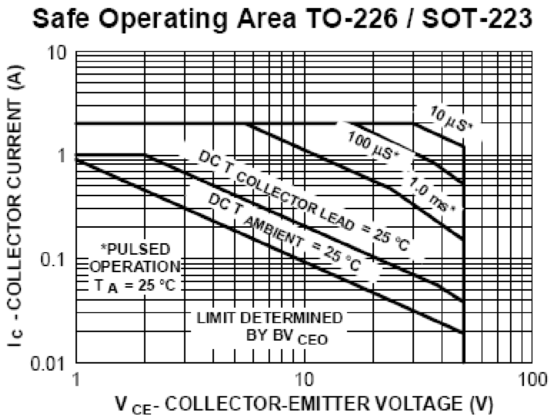

Base-Emitter Saturation Voltage vs Collector Current


Base-Emitter ON Voltage vs Collector Current

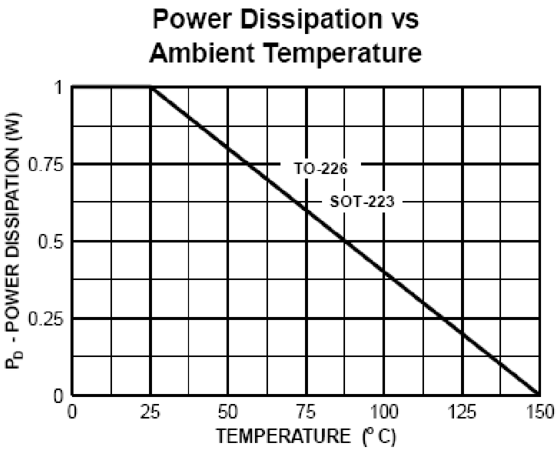

Collector-Cutoff Current vs Ambient Temperature


Collector-Base Capacitance vs Collector-Base Voltage


Gain Bandwidth Product vs Collector Current


Safe Operating Area TO-226 / SOT-223

Typical Characteristics (continued)



Power Dissipation vs Ambient Temperature

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