

MMBTA13

NPN Darlington Transistor

- This device is designed for applications requiring extremely high Current gain at collector Currents to 1.0A.
- Sourced from process 05.
- See MPSA14 for characteristics.



1. Base 2. Emitter 3. Collector

Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CES}	Collector-Emitter Voltage	30	V
V_{CBO}	Collector-Base Voltage	30	V
V_{EBO}	Emitter-Base Voltage	10	V
I _C	Collector Current - Continuous	1.2	A
T _J , T _{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units	
Off Charact	Off Characteristics					
V _{(BR)CES}	Collector-Emitter Breakdown Voltage	$I_C = 100\mu A, I_B = 0$	30		V	
I _{CBO}	Collector-Cutoff Current	$V_{CB} = 30V, I_E = 0$		100	nA	
I _{EBO}	Emitter-Cutoff Current	V _{EB} = 10V, I _C = 0		100	nA	
On Characteristics *						
h _{FE}	DC Current Gain	$V_{CE} = 5.0V, I_{C} = 10mA$ $V_{CE} = 5.0, I_{C} = 100mA$	5,000 10,000			
V _{CE (sat)}	Collector-Emitter Saturation Voltage	I _C = 100mA, I _B = 0.1mA		1.5	V	
V _{BE (on)}	Base-Emitter On Voltage	$I_C = 100 \text{mA}, V_{CE} = 5.0 \text{V}$		2.0	V	
Small Signal Characteristics						
f _T	Current Gain Bandwidth Product	$I_C = 10 \text{mA}, V_{CE} = 10 \text{V}, f = 100 \text{MHz}$	125		pF	

^{*} Pulse Test: Pulse Width≤300µs, Duty Cycle≤2%

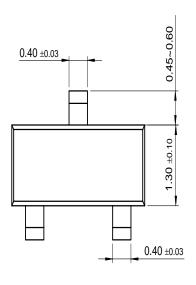
Thermal Characteristics T_a =25°C unless otherwise noted

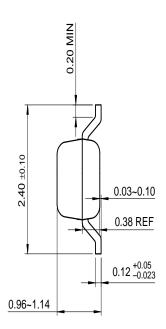
Symbol	Parameter	Max.	Units
P_{D}	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

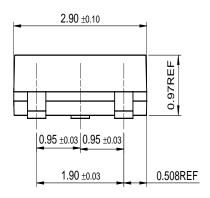
^{*} Device mounted on FR-4PCB 1.6" \times 1.6" \times 0.06".

Mechanical Dimensions

SOT-23







Dimensions in Millimeters

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