MMBTA13 / MMBTA14

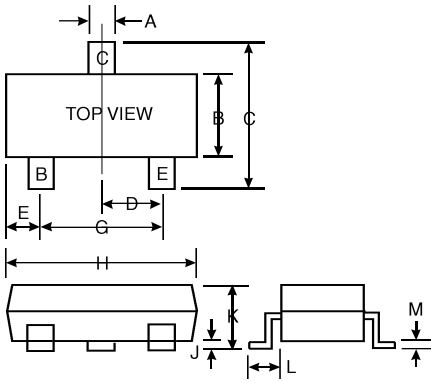
NPN SURFACE MOUNT DARLINGTON TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (MMBTA63 / MMBTA64)
- Ideal for Medium Power Amplification and Switching
- High Current Gain

Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- MMBTA13 Marking: K2D, R1M
- MMBTA14 Marking: K3D, R1N
- Weight: 0.008 grams (approx.)



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

Maximum Ratings

@ T_A = 25 C unless otherwise specified

Characteristic	Symbol	MMBTA13	MMBTA14	Unit
Collector-Base Voltage	V_{CBO}	30		V
Collector-Emitter Voltage	V_{CEO}	30		V
Emitter-Base Voltage	V_{EBO}	10		V
Collector Current - Continuous (Note 1)	I_C	300		mA
Power Dissipation (Note 1)	P_d	350		mW
Thermal Resistance, Junction to Ambient (Note 1)	R_{JA}	357		K/W
Operating and Storage and Temperature Range	T_j, T_{STG}	-55 to +150		C

Electrical Characteristics

@ T_A = 25 C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)					
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30		V	I_C = 100 A V_{BE} = 0V
Collector Cutoff Current	I_{CBO}		100	nA	V_{CB} = 30V, I_E = 0
Emitter Cutoff Current	I_{EBO}		100	nA	V_{EB} = 10V, I_C = 0
ON CHARACTERISTICS (Note 2)					
DC Current Gain MMBTA13 MMBTA14 MMBTA13 MMBTA14	h_{FE}	5,000 10,000 10,000 20,000			I_C = 10mA, V_{CE} = 5.0V I_C = 10mA, V_{CE} = 5.0V I_C = 100mA, V_{CE} = 5.0V I_C = 100mA, V_{CE} = 5.0V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		1.5	V	I_C = 100mA, I_B = 100 A
Base- Emitter Saturation Voltage	$V_{BE(SAT)}$		2.0	V	I_C = 100mA, V_{CE} = 5.0V
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}	8.0 Typical		pF	V_{CB} = 10V, f = 1.0MHz, I_E = 0
Input Capacitance	C_{ibo}	15 Typical		pF	V_{EB} = 0.5V, f = 1.0MHz, I_C = 0
Current Gain-Bandwidth Product	f_T	125		MHz	V_{CE} = 5.0V, I_C = 10mA, f = 100MHz

Note: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width 300 s, duty cycle 2%.