

NPN Darlington Amplifier Transistor MMBTA13/MMBTA14

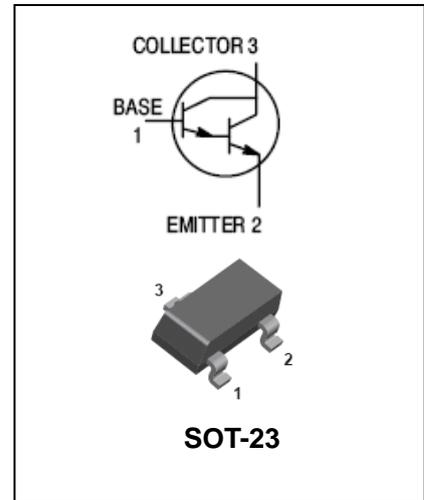
FEATURES

- Epitaxial planar die construction.
- Complementary PNP type available (MMBTA63/MMBTA64).
- High current gain.
- MSL 1



APPLICATIONS

- Ideal for medium power amplification and switching.



ORDERING INFORMATION

Type No.	Marking	Package Code
MMBTA13	K2D	SOT-23
MMBTA14	K3D	SOT-23

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	UNIT	
V _{CBO}	collector-base voltage	MMBTA13	30	V
		MMBTA14	30	
V _{CEO}	collector-emitter voltage	MMBTA13	30	V
		MMBTA14	30	
V _{EBO}	emitter-base voltage	10	V	
I _C	collector current (DC)	0.3	A	
P _C	Collector dissipation	0.3	W	
R _{θJA}	Thermal Resistance, Junction to Ambient	417	°C/W	
T _J , T _{stg}	junction and storage temperature	-55 to +150	°C	

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ELECTRICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test conditions	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage MMBTA13 MMBTA14	$I_C=100\mu\text{A}, I_E=0$	30 30	-	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage MMBTA13 MMBTA14	$I_C=0.1\text{mA}, I_B=0$	30 30	-	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=100\mu\text{A}, I_C=0$	10	-	V
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 30\text{V}$	-	0.1	μA
I_{CEO}	collector cut-off current	$I_E = 0; V_{CE} = 10\text{V}$	-	0.1	μA
h_{FE}	DC current gain	MMBTA13 $V_{CE} = 5\text{V}; I_C = 10\text{mA}$	5000	-	
		MMBTA14 $V_{CE} = 5\text{V}; I_C = 10\text{mA}$	10000		
		MMBTA13 $V_{CE} = 5\text{V}; I_C = 100\text{mA}$	10000		
		MMBTA14 $V_{CE} = 5\text{V}; I_C = 100\text{mA}$	20000		
$V_{CE(sat)}$	collector-emitter saturation voltage	$I_C = 100\text{mA}; I_B = 0.1\text{mA}$	-	1.5	V
V_{BE}	Base-emitter on voltage	$I_C=100\text{mA}, V_{CE}=5\text{V}$	-	2.0	V
f_T	transition frequency	$I_C = 10\text{mA}; V_{CE} = 5.0\text{V};$ $f = 100\text{MHz}$	125	-	MHz

TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

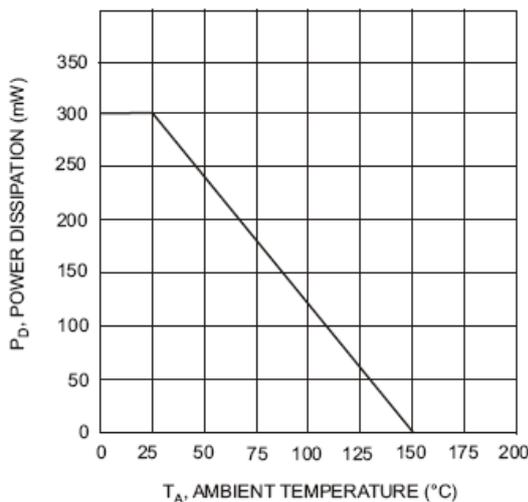


Fig. 1, Max Power Dissipation vs Ambient Temperature

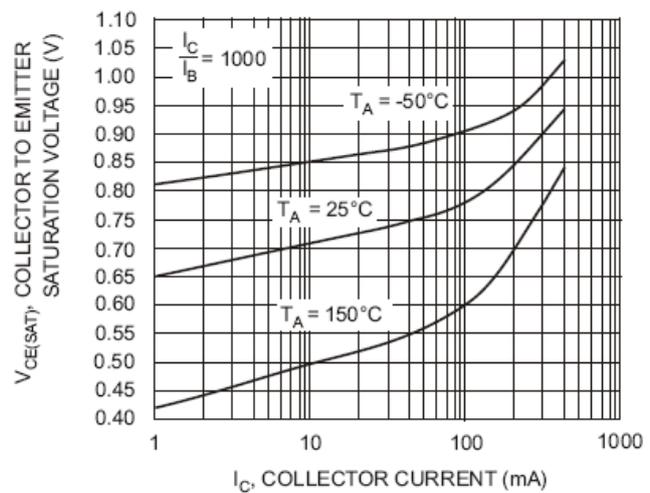


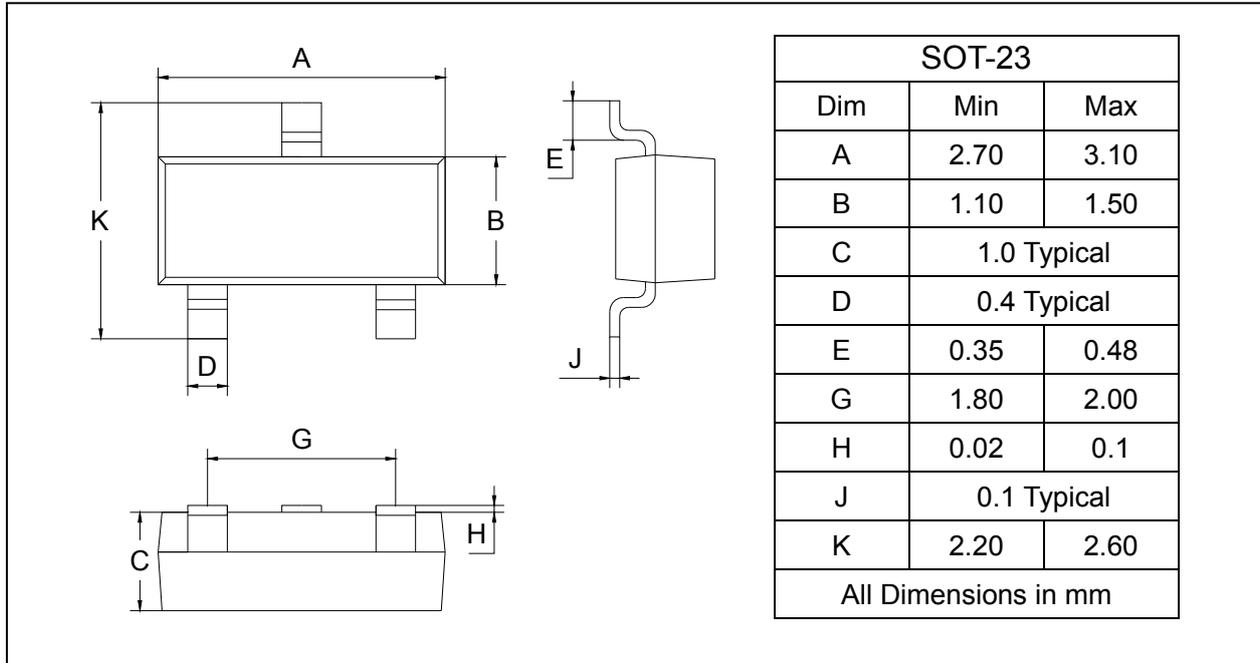
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

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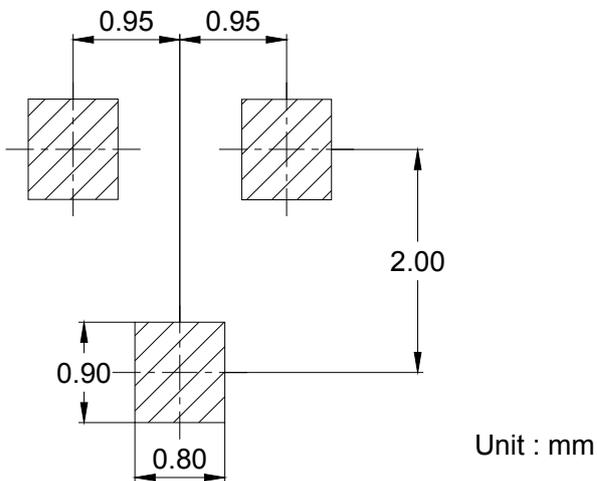
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
MMBTA13/MMBTA14	SOT-23	3000/Tape&Reel