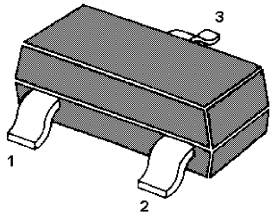
NPN Silicon Epitaxial Planar Darlington Transistor



1.Base 2.Emitter 3.Collector
SOT-23 Plastic Package

FEATURES

➢Epitaxial planar die construction.

➢High current gain.

APPLICATIONS

➢Ideal for medium power amplification and switching.

Product Specification Classification

Part Number	Package	Marking	Pack
MMBTA13	SOT-23	K2D	3000PCS/Tape

Absolute Maximum Ratings (Ta = 25 °C)

Parameter	Symbol	Value	Unit
Collector Emitter Voltage	V_{CES}	30	V
Collector Base Voltage	V_{CBO}	30	V
Emitter Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Total Device Dissipation Derate above 25 °C	P_{tot}	200 2.8	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	-55 to +150	°C

Characteristics at T_{amb}= 25 °C

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at I_C=10mA, V_{CE}=5V at I_C=100mA, V_{CE}=5V	h_{FE} h_{FE}	5000 10,000	- -	- -
Collector Cutoff Current at V_{CB}=30V	I_{CBO}	-	0.1	μA
Emitter Cutoff Current at V_{EB}=10V	I_{EBO}	-	0.1	μA
Collector Emitter Breakdown Voltage at I_C=100μA	$V_{(BR)CES}$	30	-	V
Collector Saturation Voltage at I_C=100mA, I_B=0.1mA	$V_{CE(sat)}$	-	1.5	V
Base On Voltage at I_C=100mA, V_{CE}=5V	$V_{BE(on)}$	-	2	V
Current Gain – Bandwidth Product at I_C=10mA, V_{CE}=10V, f=100MHz	f_T	125	-	MHz

Ratings and Characteristic Curves

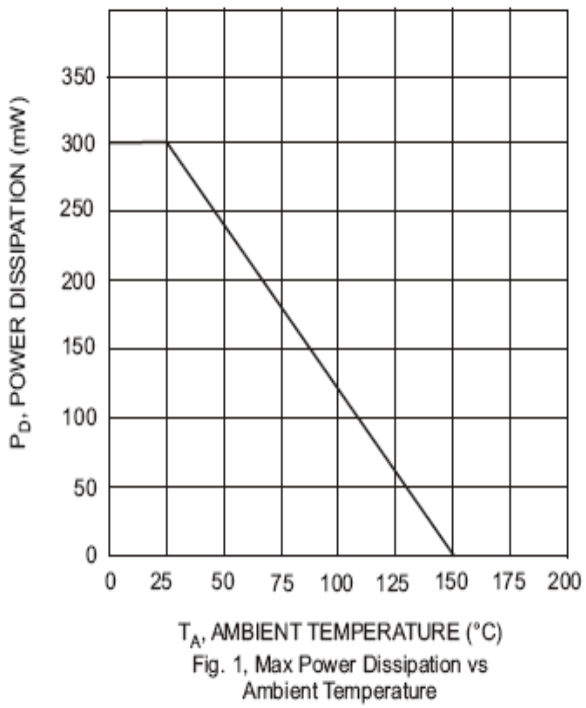


Fig. 1, Max Power Dissipation vs Ambient Temperature

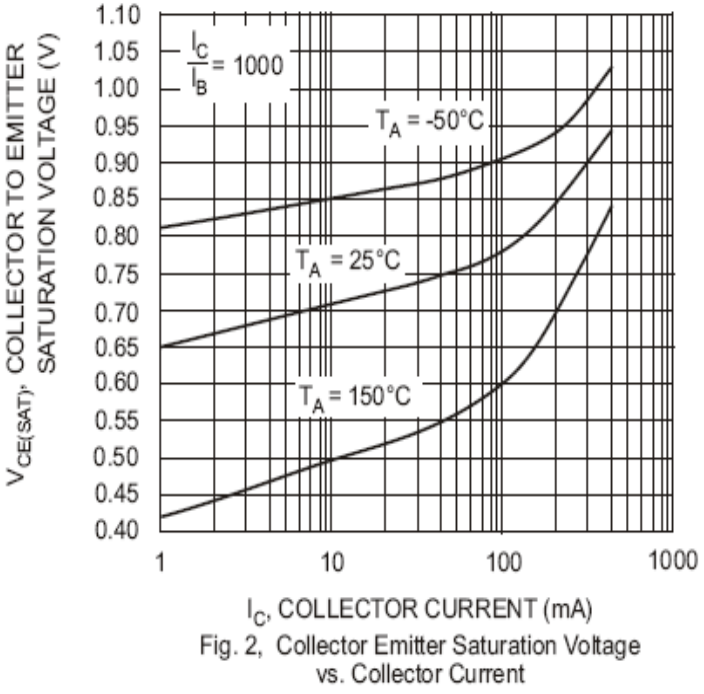
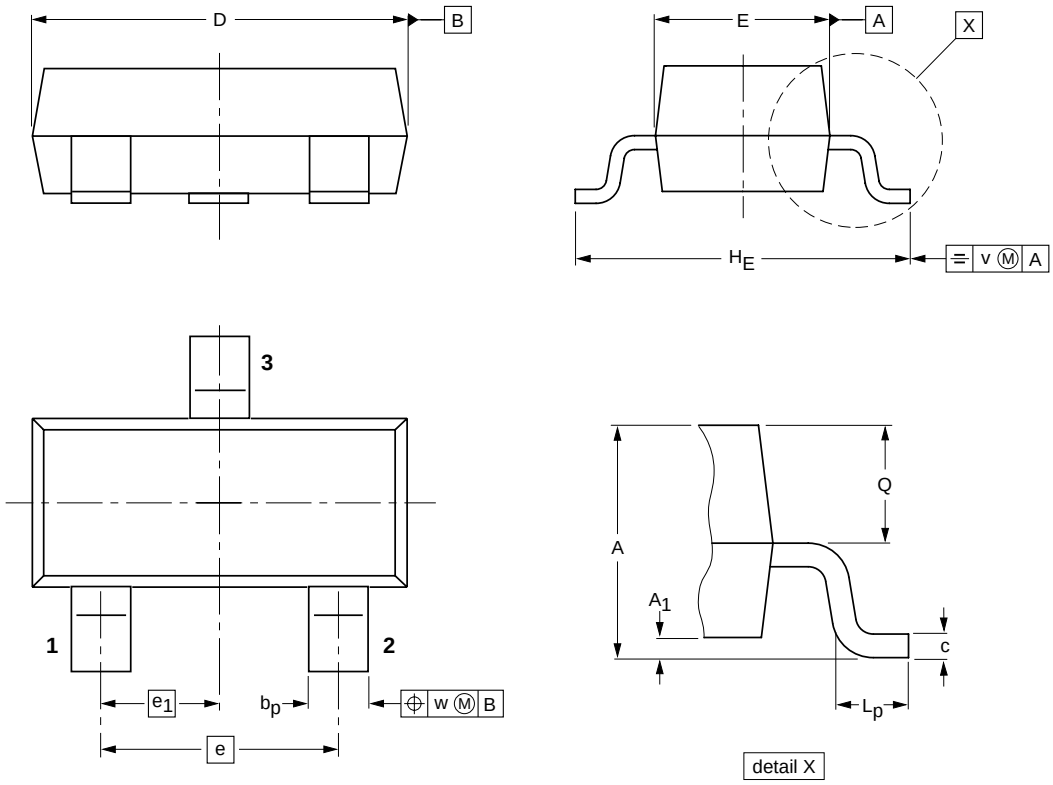


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

Package Outline SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1