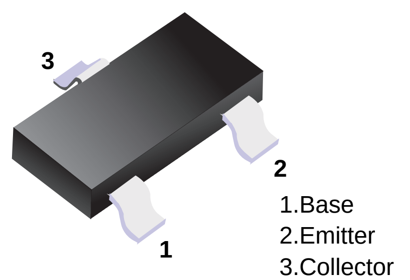
NPN Silicon Epitaxial Planar Darlington Transistor



SOT-23

FEATURES

- ➢Epitaxial planar die construction.
- ➢High current gain.

APPLICATIONS

- ➢Ideal for medium power amplification and switching.

Marking Code	
MMBTA13	K2D

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

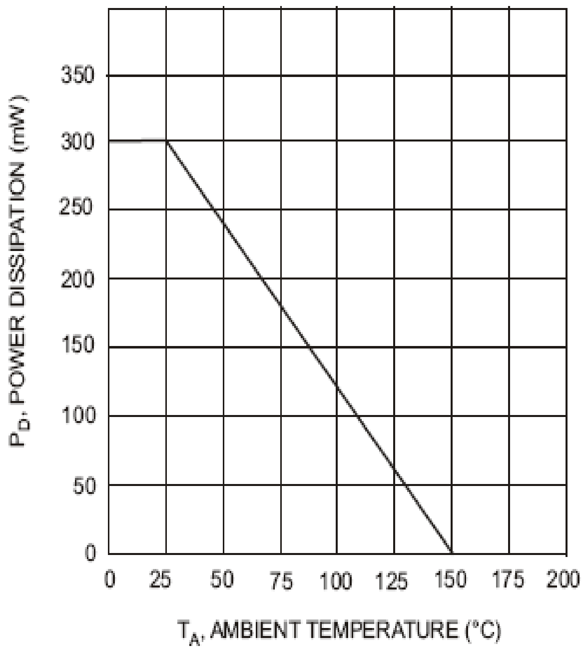


Fig. 1, Max Power Dissipation vs Ambient Temperature

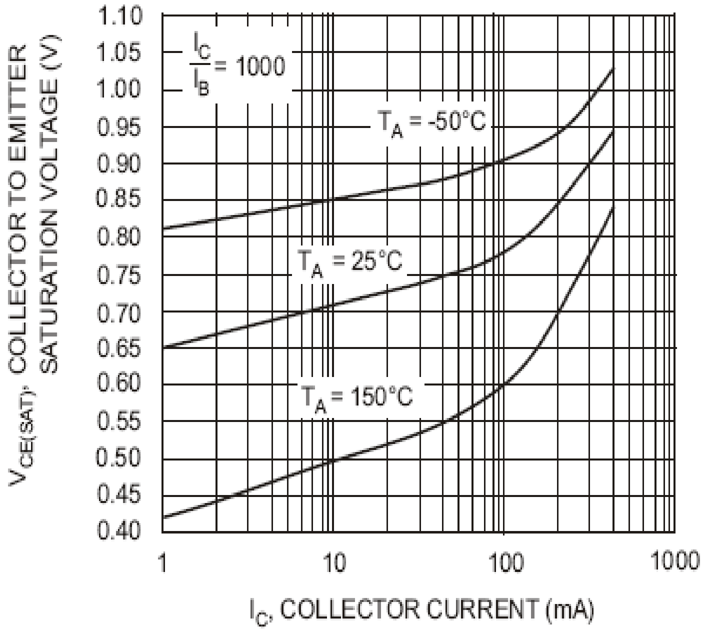


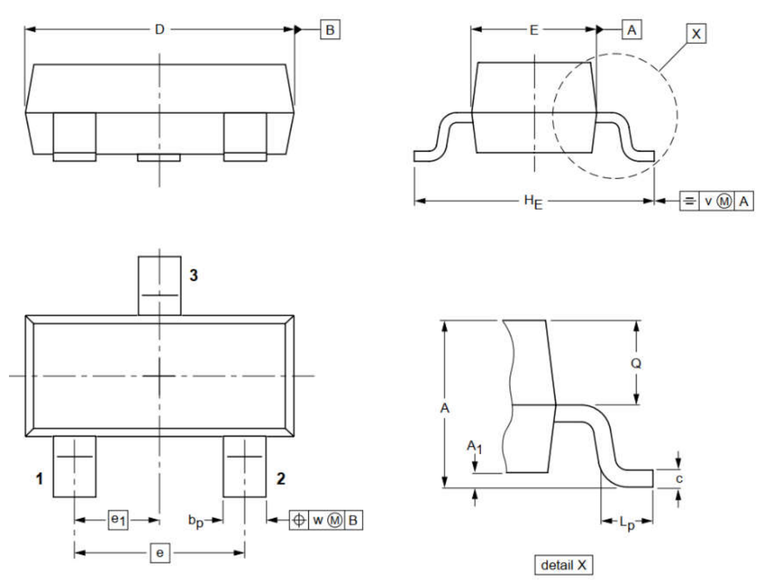
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7”reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

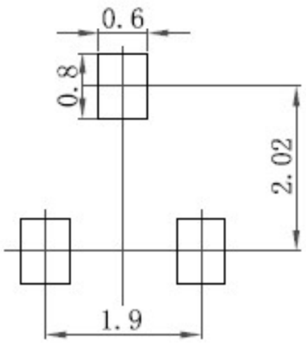
Package Dimensions

SOT-23



Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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