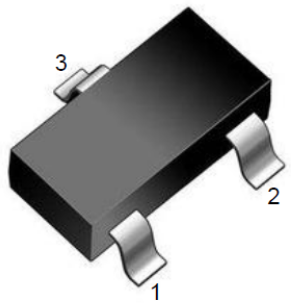
NPN Darlington Amplifier

SOT-23



1、Base
2、Emitter
3、Collector

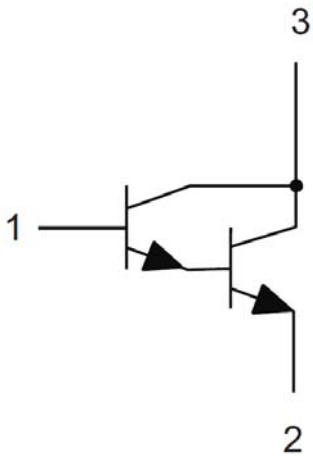
Features

- We declare that the material of product compliance with RoHS requirements and Halogen Free
- Surface mount package ideally suited for automatic insertion
- Moisture Sensitivity Level 1
- High Current Gain

Mechanical Data

- Package: SOT-23
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Marking: K2D

■ Equivalent Circuit



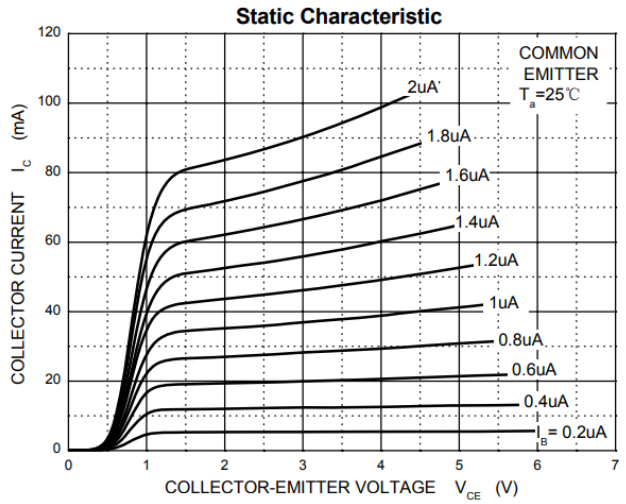
■ Maximum Ratings (Ta=25℃ Unless otherwise specified)

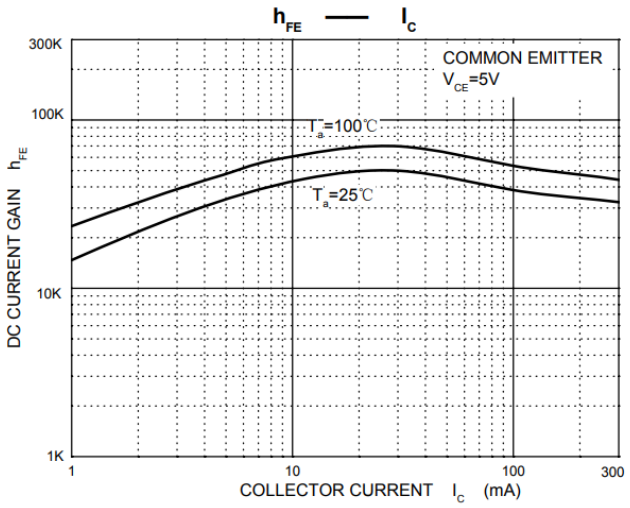
Item	Symbol	Unit	Conditions	Value
Collector-Base Voltage	V_{CBO}	V	IC=100μA,IE=0	30
Collector-Emitter Voltage	V_{CEO}	V	IC =100μA,IB=0	30
Emitter-Base Voltage	V_{EBO}	V	IE=100μA,IC=0	10
Collector Current	I_C	A		0.3
Collector Power Dissipation	P_C	mW		300
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$			417
Operation Junction Temperature	T_J	℃		150
Storage Temperature	T_{STG}	℃		-55 to +150

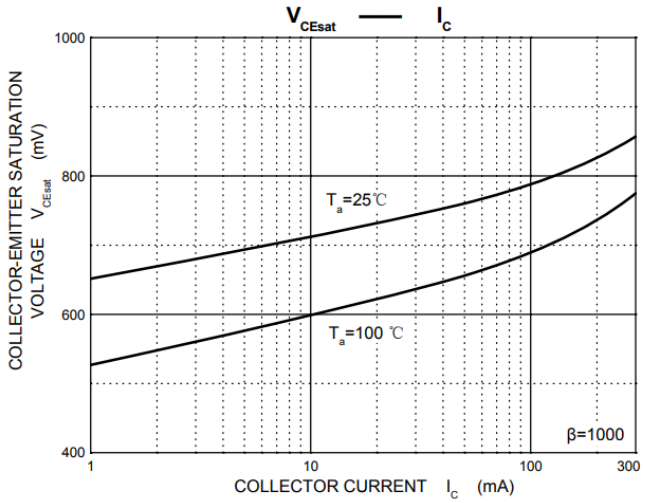
■ Electrical Characteristics（Ta=25℃ Unless otherwise specified）

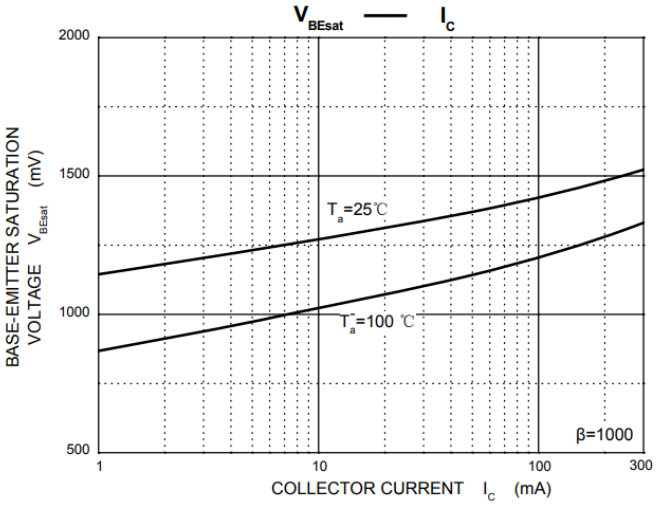
Item	Symbol	Unit	Conditions	Min	Type	Max
Collector-Base Voltage	V_{CBO}	V	IC=100μA,IE=0	30		
Collector-Emitter Voltage	V_{CEO}	V	IC =100μA,IB=0	30		
Emitter-Base Voltage	V_{EBO}	V	IE=100μA,IC=0	10		
Collector-Base cut-off current	I_{CBO}	uA	V_{CB}=30 V ,IE=0			0.1
Emitter-Base cut-off current	I_{EBO}	uA	V_{EB}=10 V , IC=0			0.1
DC current gain	h_{FE1}		VCE=5V,IC=10mA	5000		
	h_{FE2}		VCE=5V,IC=100mA	10000		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	IC=100mA,IB=0.1mA			1.5
Base-emitter saturation voltage	$V_{BE(sat)}$	V	IC=100mA,IB=0.1mA			2
Base-emitter voltage	V_{BE}	V	VCE=5V,IC=100mA			2
Transition frequency	f_T	MHz	VCE= 5V, IC=10mA,f=100MHz	125		
Collector-Base Output Capacitance	Cob	pF	V_{CB}=10V ,IE=0, f=1MHz			12

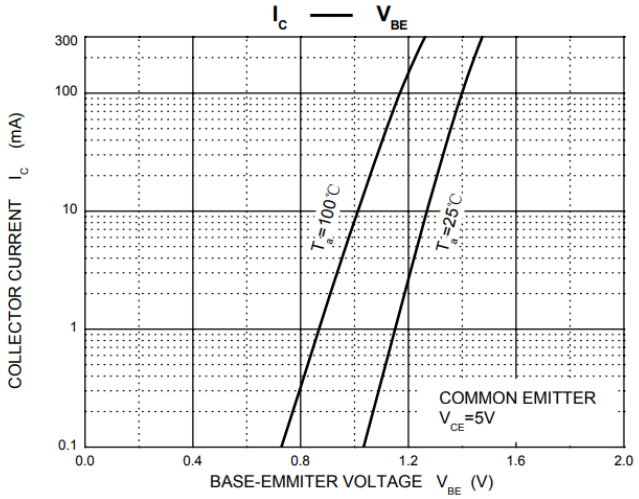
■ Electrical Characteristics (Typical)

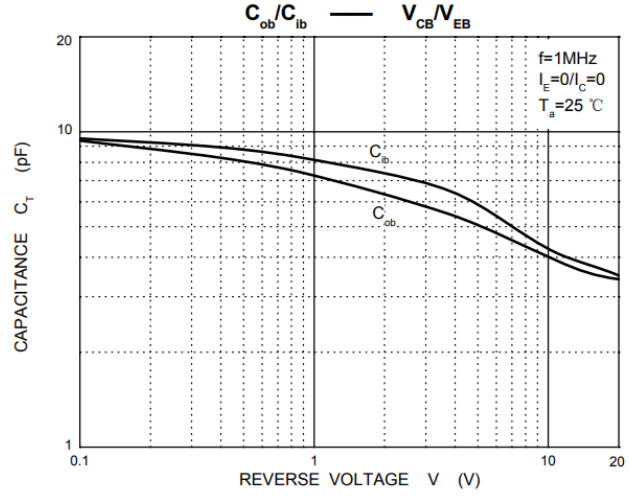


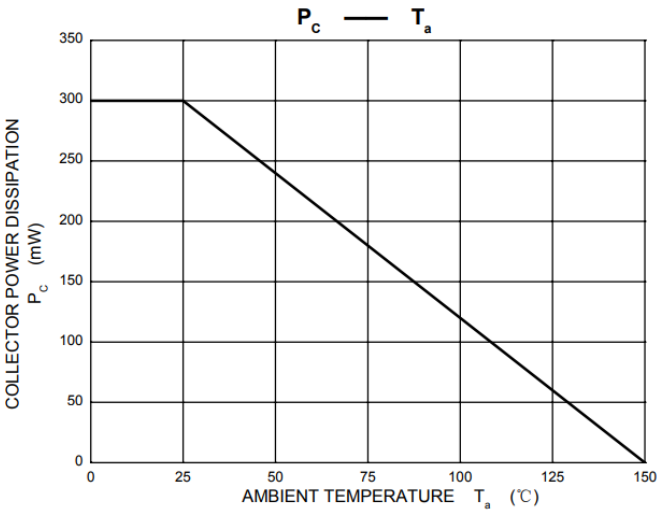








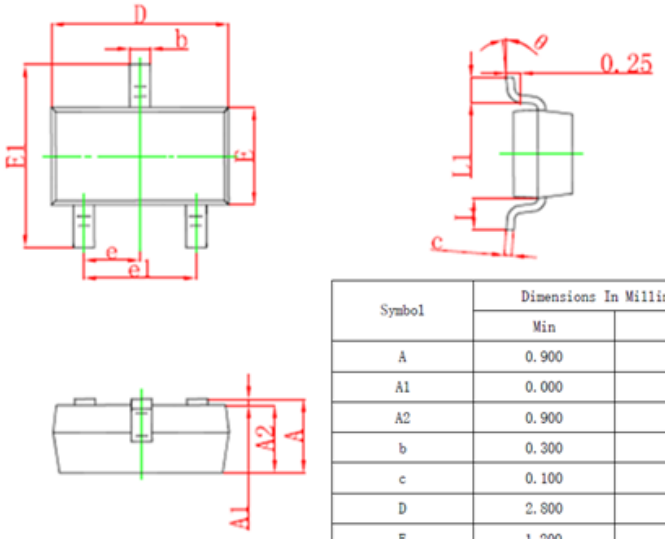



P_C — T_a
COLLECTOR POWER DISSIPATION
P_C (mW)
350
300
250
200
150
100
50
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE T_a (℃)

■ Ordering Information (Example)

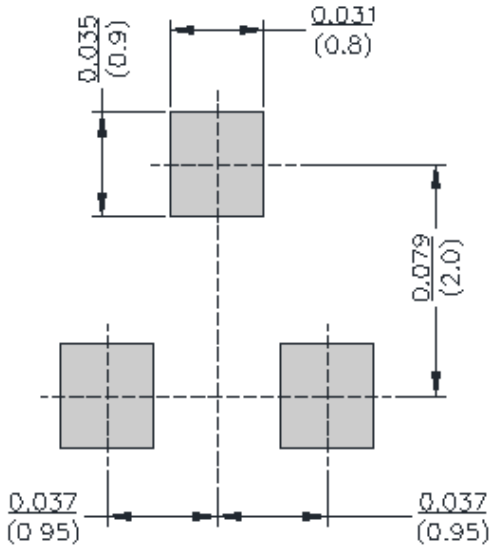
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBTA13	F2	Approximate 0.008	3000	30000	120000	7” reel

■SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■SOT-23 Soldering Footprint



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