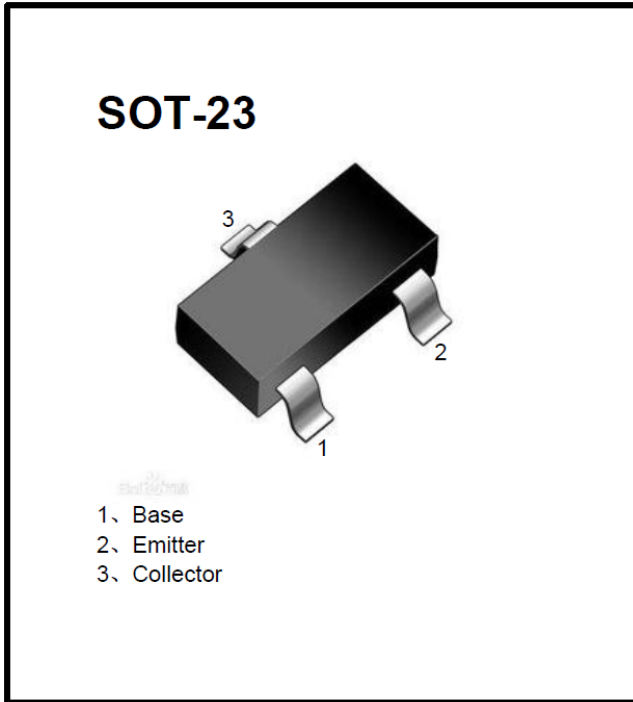


NPN Darlington Amplifier



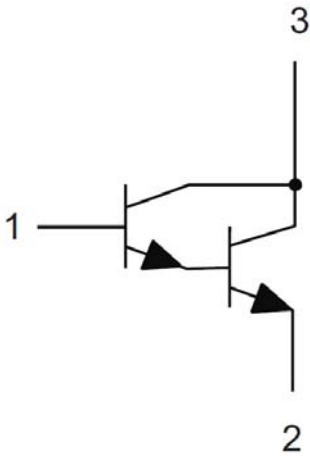
Features

- 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°C Unless otherwise specified)

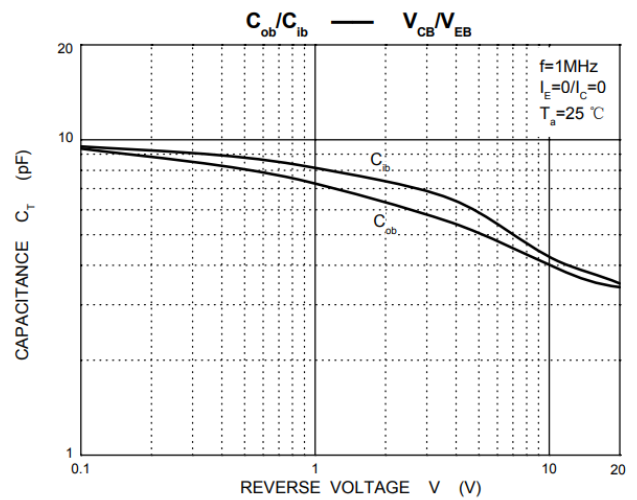
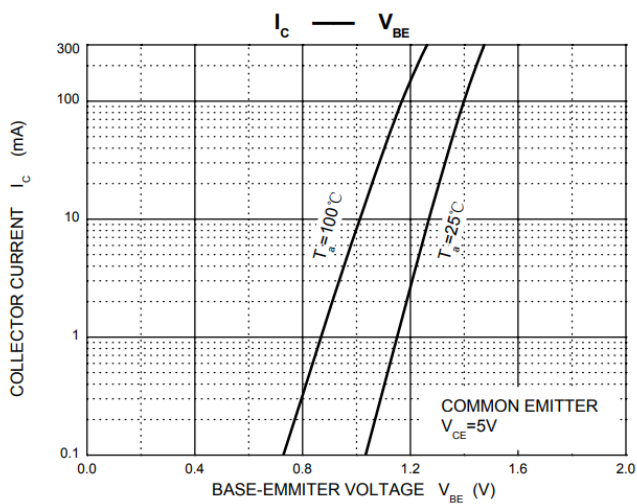
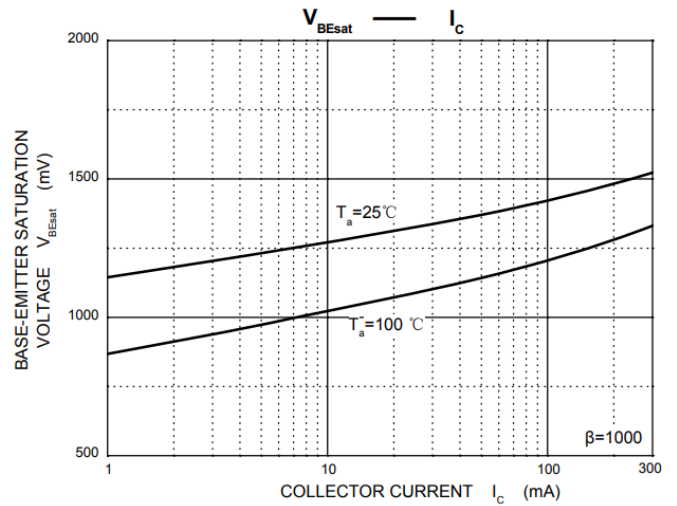
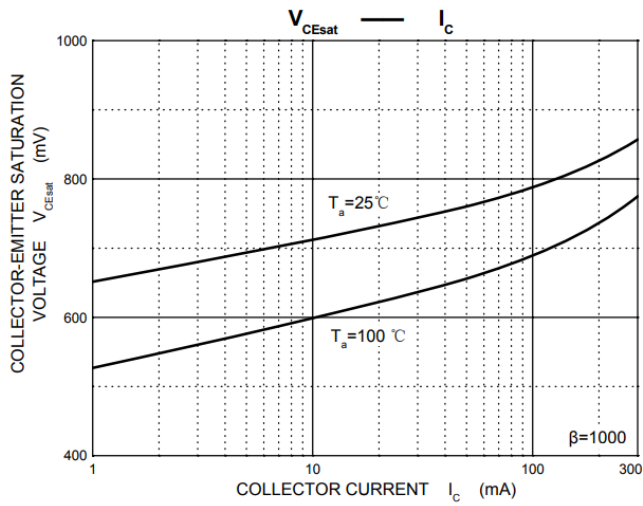
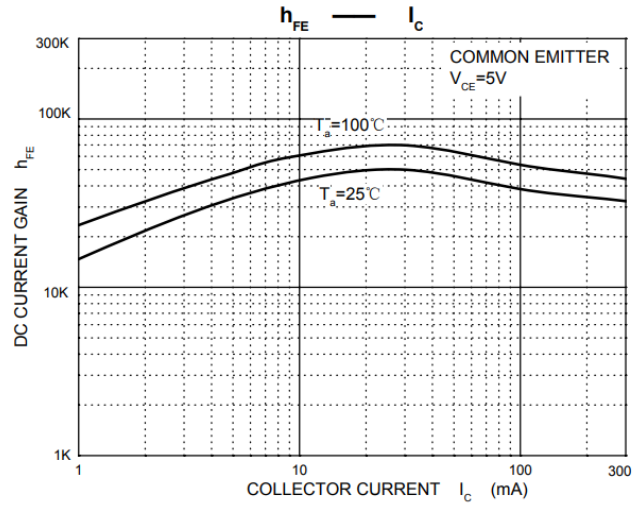
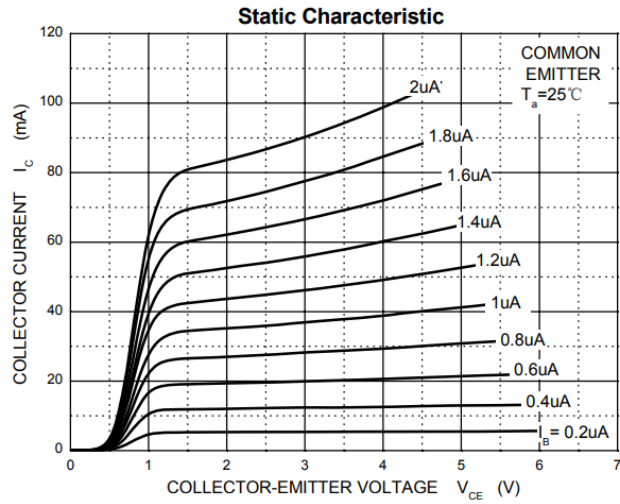
Item	Symbol	Unit	Conditions	Value
Collector-Base Voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	30
Collector-Emitter Voltage	V_{CEO}	V	$I_C=100\mu A, I_B=0$	30
Emitter-Base Voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	10
Collector Current	I_C	A		0.3
Collector Power Dissipation	P_C	mW		300
Thermal Resistance From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

■ Electrical Characteristics (Ta=25°C Unless otherwise specified)

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



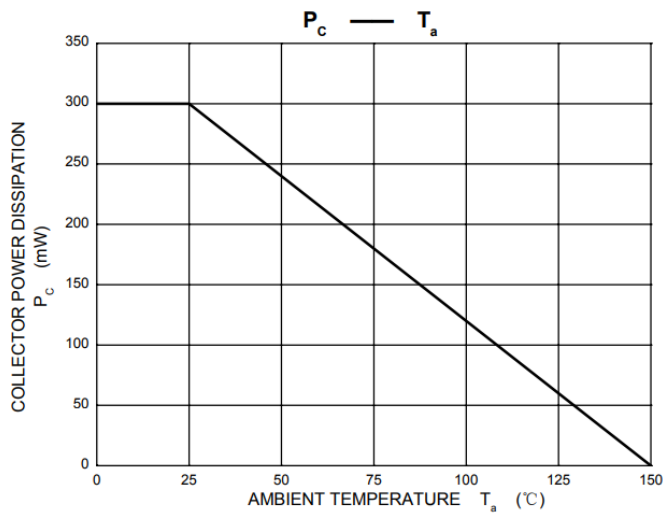
Electrical Characteristics (Typical)





MMBTA13

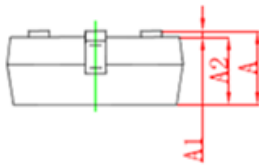
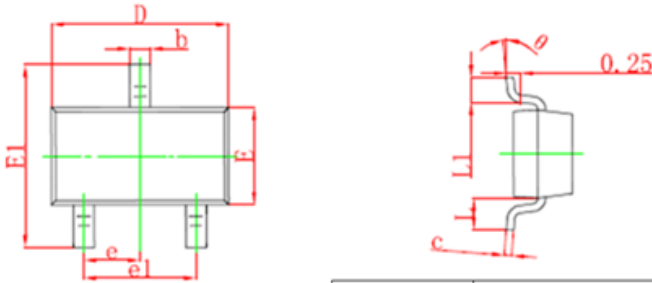
RoHS
COMPLIANT



■ Ordering Information (Example)

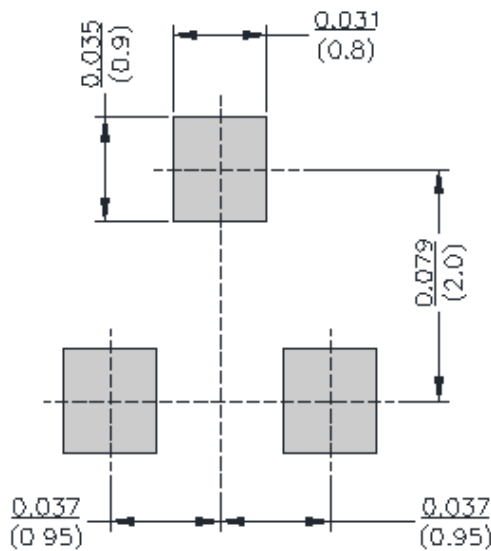
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBTA13	F2	Approximate 0.008	3000	30000	120000	7" reel

■ 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
ø	0°	8°	0°	8°

■ SOT-23 Soldering Footprint





Disclaimer

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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