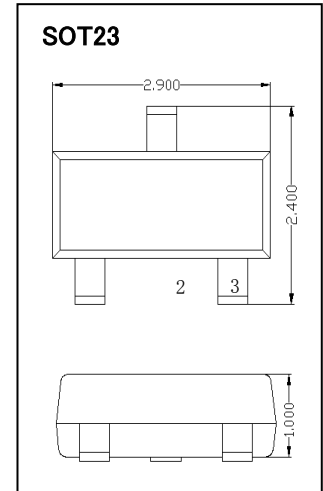
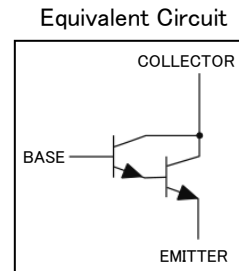


DATA SHEET

MMBTA13-MMBTA14

- ◇Epoxy meets UL 94 V-0 flammability rating
- ◇Lead Free Finish/RoHS Compliant
- ◇For Switching and AF Amplifier Applications
- ◇Rugged and reliable

Device Marking Code	
MMBTA13	K2D
MMBTA14	K3D/1N



Maximum Ratings (Ta=25°C Unless Otherwise Noted)

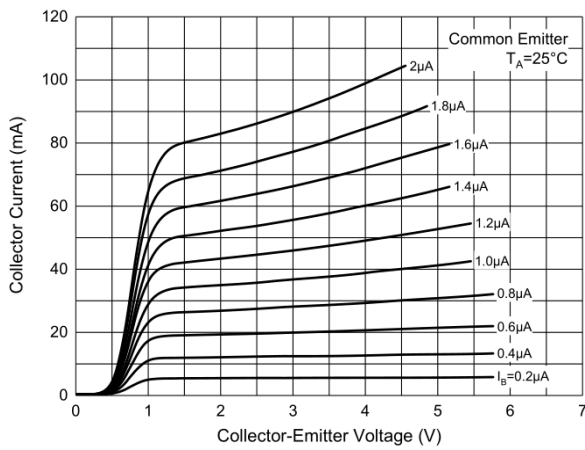
Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Continuous Collector Current	300	mA
P_D	Power Dissipation	225	mW
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~+150	°C

Electrical Characteristics @ 25°C Unless Otherwise Specified

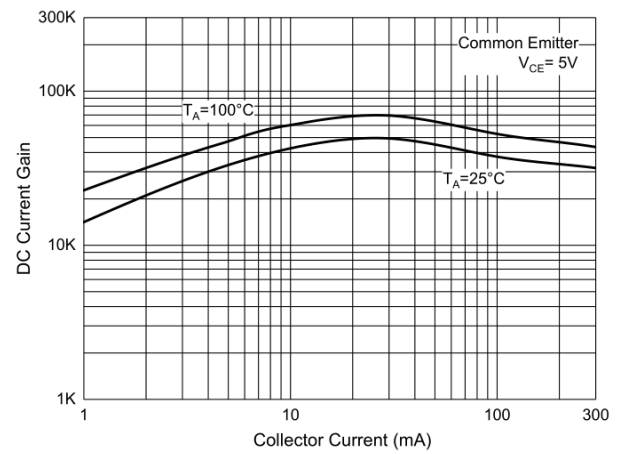
Symbol	Parameter	Test Conditions		Min	Max	Units
I _{CBO}	Collector Cutoff Current	V _{CB} =30V, I _E =0V			0.1	uA
I _{EBO}	Emitter Cutoff Current	V _{EB} =10V,I _C =0			0.1	uA
h _{FE}	DC Current Gain	MMBTA13	V _{CE} =5V, I _C =10mA	5000		
		MMBTA14		10000		
		MMBTA13	V _{CE} =1V, I _C =150mA	10000		
		MMBTA14		20000		
V _{CE(sat)}	Collector–Emitter Saturation Voltage	I _C =100mA,I _B =0.1mA			1.5	V
V _{BE}	Base–Emitter Voltage	V _{CE} =5V,I _C =100mA			2.0	V
f _T	Transition Frequency	I _C =10mA, V _{CE} =5V,f=100MHz		125		MHz

t_d	Delay Time	$V_{CC}=30V, V_{BE}=0.5V, I_C=150mA,$ $I_{B1}=15mA$		10	nS
t_r	Rise Time			25	nS
t_s	Storage Time	$V_{CC}=30V, I_C=150mA,$ $I_{B1}=I_{B2}=15mA$		225	nS
t_f	Fall Time			60	ns
Cobo	Output Capacitance	$V_{CB}=10V, I_E=0, f=1MHz$		8	pF
Cibo	Input Capacitance	$V_{EB}=0.5V, I_C=0, f=1MHz$		15	pF

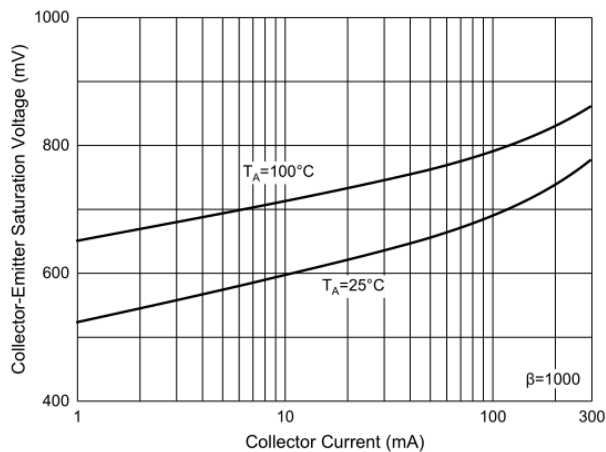
Typical Characteristics



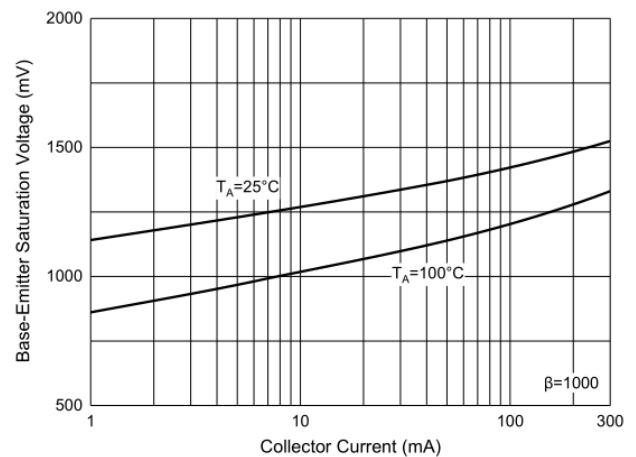
Static Characteristics



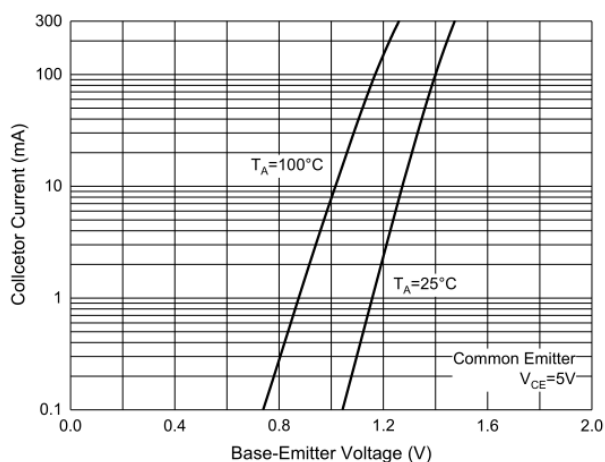
DC Current Gain Characteristics



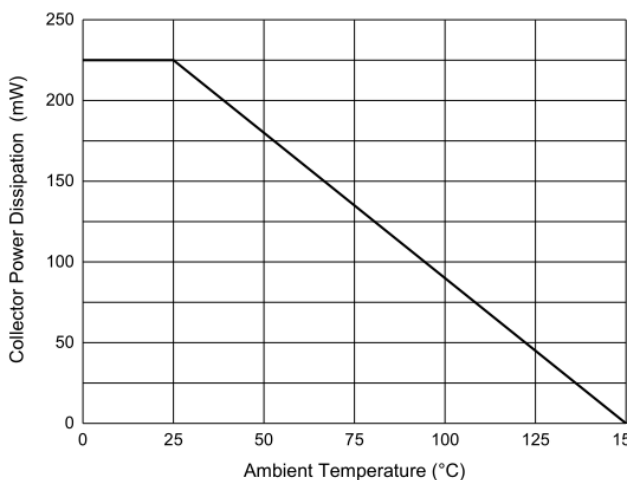
Collector-Emitter Saturation Voltage Characteristics



Base-Emitter Saturation Voltage Characteristics



Base-Emitter Voltage Characteristics



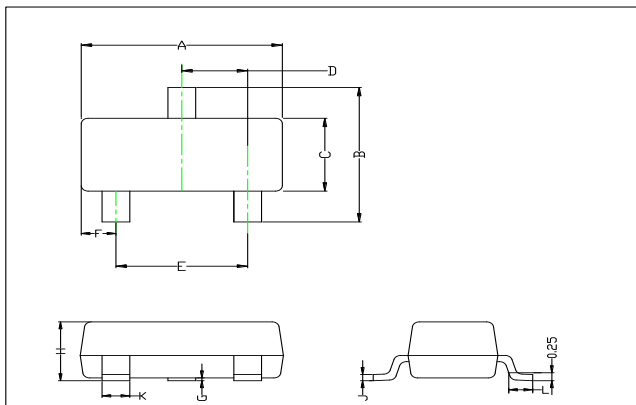
Collector Power Derating Curve

ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
MMBTA13-MMB TA14	SOT23	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

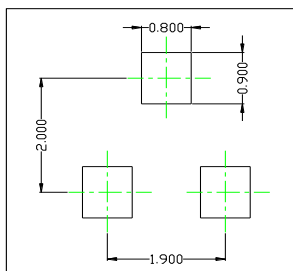
PACKAGE DIMENSIONS

Package outline : SOT23



Symbol	Dimensions in mm	
	Min.	Max.
A	2.800	3.040
B	2.100	2.640
C	1.200	1.400
D	0.890	1.030
E	1.780	2.050
F	0.450	0.600
G	0.013	0.100
H	0.900	1.110
J	0.085	0.180
K	0.370	0.510
L	0.300	0.500

SOT23 Package Outline



Notice:

1. Lead plating: Pb free solder
2. Lead thickness includes solder plating
3. Lead frame: CAC-5
4. Other Tolerance: ± 0.05
5. Unit: mm

NOTICE

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