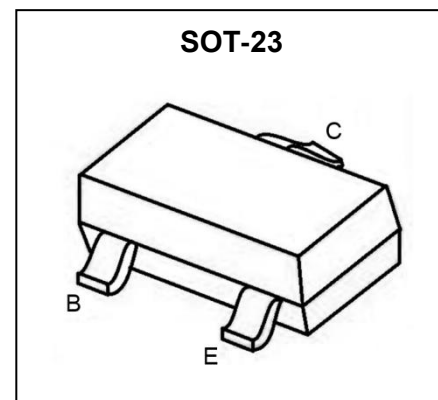


MMBTA13 Transistor(NPN)

Feature

- For Switching and Amplifier Applications
- Epoxy Meets UL 94 V-0 Flammability Rating
- Rugged and Reliable

Marking: K2D



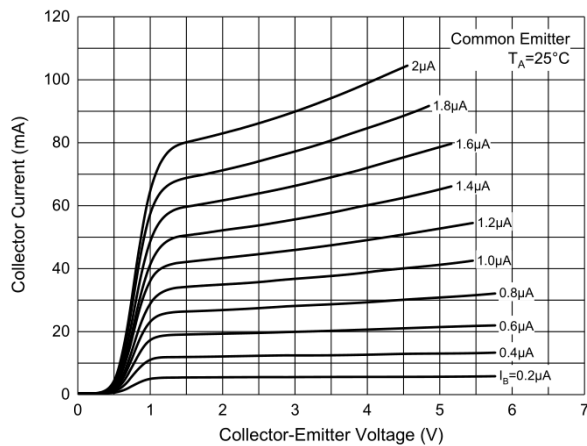
MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	30	V
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Base Voltage	V _{EBO}	10	V
Collector Current -Continuous	I _C	0.3	A
Power Dissipation	P _d	0.225	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55~ +150	°C

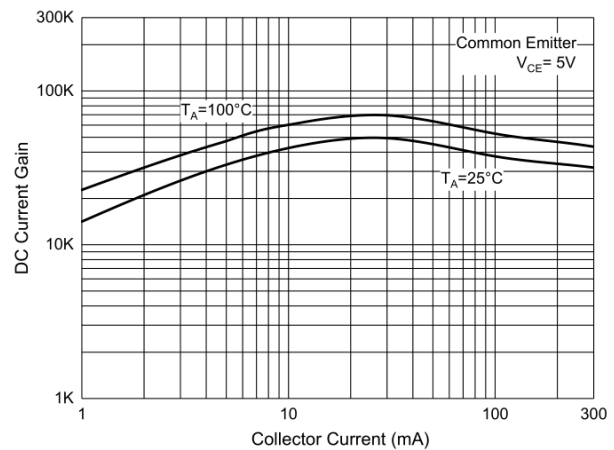
ELECTRICAL CHARACTERISTICS(T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = 100μA, I _E = 0	30		V
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 100μA, I _B = 0	30		V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E = 100μA, I _C = 0	10		V
Collector Cut-Off Current	I _{CBO}	V _{CB} = 30V, I _E = 0		0.1	μA
Emitter Cut-Off Current	I _{EBO}	V _{EB} = 10V, I _C = 0		0.1	μA
Dc Current Gain	h _{FE}	V _{CE} = 5V, I _C = 10mA	5000		
		V _{CE} = 1V, I _C = 150mA	10000		
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 100mA, I _B = 0.1mA		1.5	V
Base-Emitter Voltage	V _{BE}	V _{CE} = 5V, I _C = 100mA		2	V
Transition Frequency	f _T	V _{CE} = 5V, I _C = 10mA, f = 100MHz	125		MHz
Collector Output Capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz		8	pF
Input Capacitance	C _{ibo}	V _{EB} = 0.5V, I _C = 0, f = 1MHz		15	pF
Delay Time	t _d	V _{CC} = 30V, V _{BE} = 0.5V, I _C = 150mA, I _{B1} = 15mA		10	nS
Rise Time	t _r			25	nS
Storage Time	t _s	V _{CC} = 30V, I _C = 150mA, I _{B1} = I _{B2} = 15mA		225	nS
Fall Time	t _f			60	nS

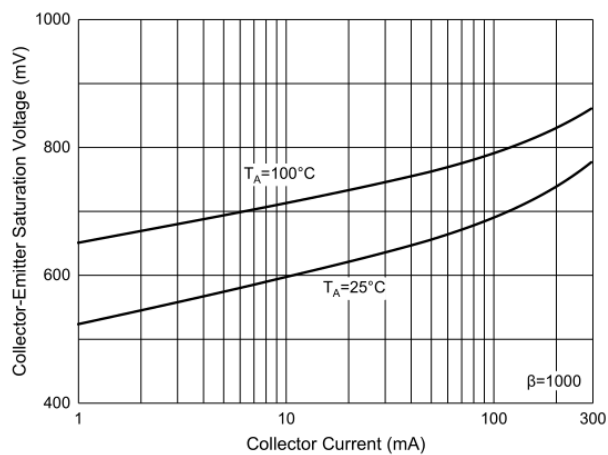
Typical Characteristics



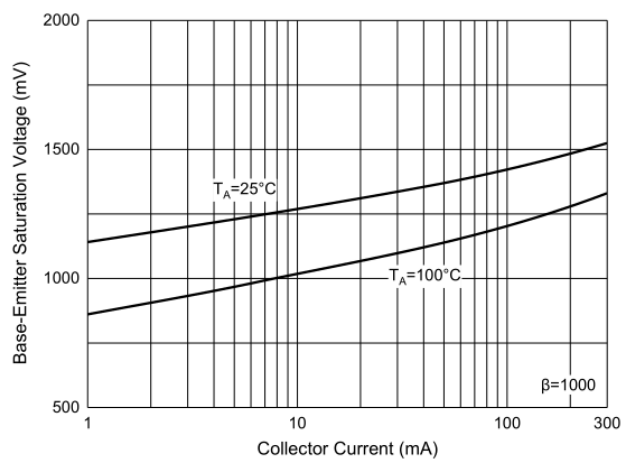
Static Characteristics



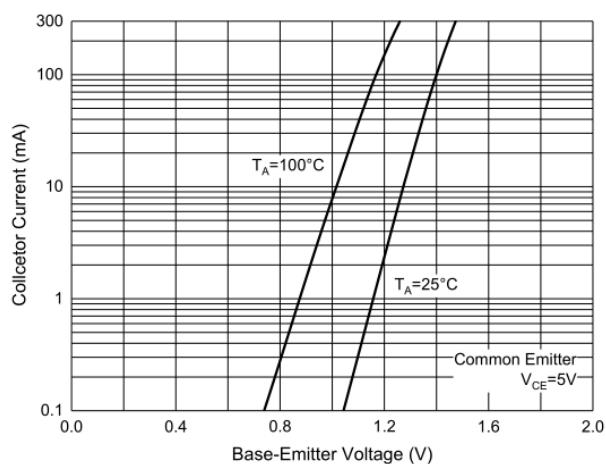
DC Current Gain Characteristics



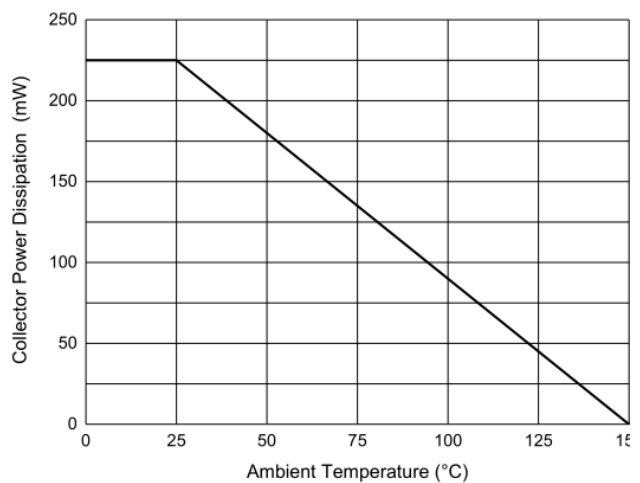
Collector-Emitter Saturation Voltage Characteristics



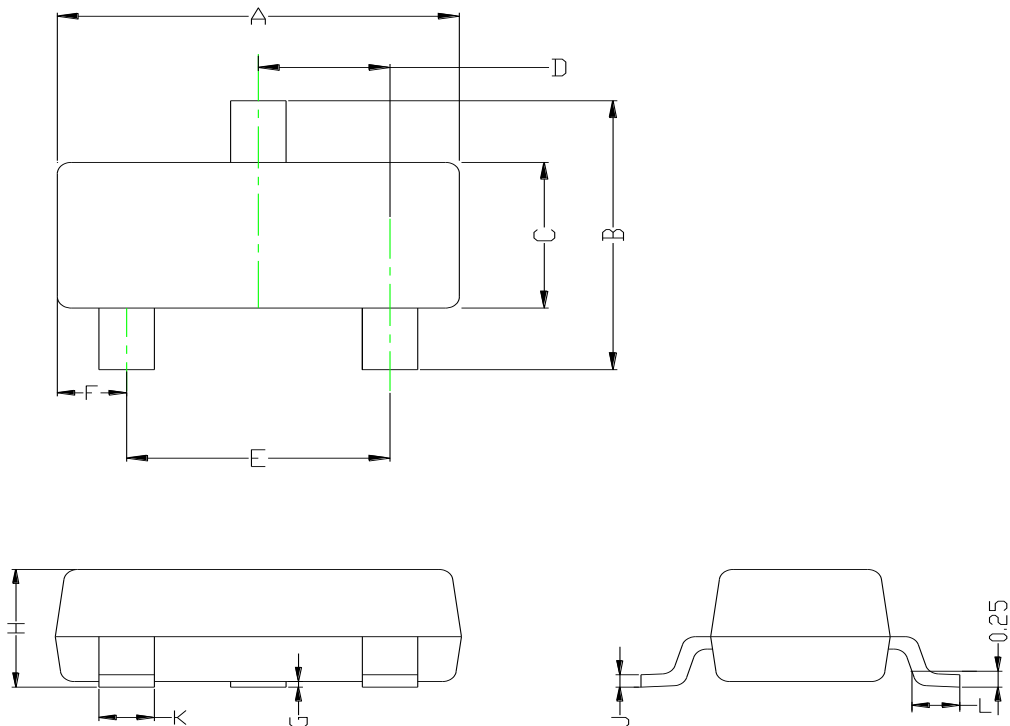
Base-Emitter Saturation Voltage Characteristics



Base-Emitter Voltage Characteristics



Collector Power Derating Curve

SOT-23 Package Information


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

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- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.