Driver Transistors

FEATURES

- We declare that the material of product compliance with RoHS requirements.

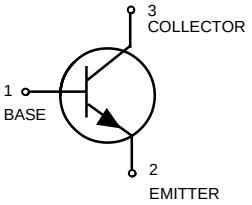
DEVICE MARKING

MMBTA05 = 1H , MMBTA06 = 1GM

SOT–23

MAXIMUM RATINGS

Rating	Symbol	Value MMBTA05	Value MMBTA06	Unit
Collector–Emitter Voltage	V_{CEO}	60	80	Vdc
Collector–Base Voltage	V_{CBO}	60	80	Vdc
Emitter–Base Voltage	V_{EBO}	4.0		Vdc
Collector Current — Continuous	I_C	500		mAdc



THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR– 5 Board, (1) T_A = 25°C	P_D	225	mW
Derate above 25°C		1.8	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (2) T_A = 25°C	P_D	300	mW
Derate above 25°C		2.4	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J , T_{stg}	–55 to +150	°C

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage(3)		$V_{(BR)CEO}$			Vdc
(I_C = 1.0 mAdc, I_B = 0)	MMBTA05		60	—	
	MMBTA06		80	—	
Emitter–Base Breakdown Voltage		$V_{(BR)EBO}$	4.0	—	Vdc
(I_E = 100 µAdc, I_C = 0)					
Collector Cutoff Current		I_{CES}	—	0.1	µAdc
(V_{CE} = 60Vdc, I_B = 0)					
Emitter Cutoff Current		I_{CBO}			µAdc
(V_{CB} = 60Vdc, I_E = 0)	MMBTA05		—	0.1	
(V_{CB} = 80Vdc, I_E = 0)	MMBTA06		—	0.1	

1. FR–5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.
3. Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%.

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

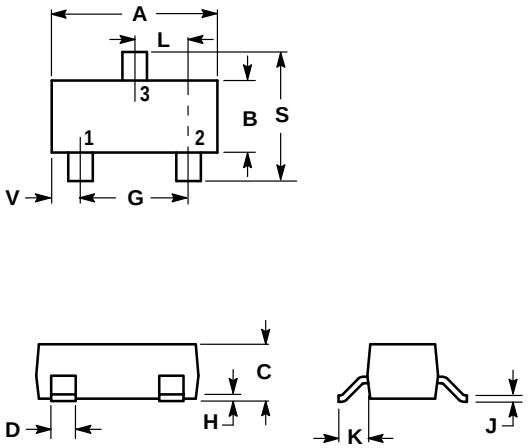
Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain	h_{FE}			—
(I_C = 10 mAdc, V_{CE} = 1.0 Vdc)		100	—	
(I_C = 100 mAdc, V_{CE} = 1.0 Vdc)		100	—	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$			Vdc
(I_C = 100 mAdc, I_B = 10 mAdc)		—	0.25	
Base–Emitter On Voltage	$V_{BE(sat)}$			Vdc
(I_C = 100 mAdc, V_{CE}= 1.0 Vdc)		—	1.2	
SMALL–SIGNAL CHARACTERISTICS				
Current –Gain – Bandwidth Product(4) (V_{CE} = 2.0 V, I_C = 10mA, f = 100 MHz)	f_T	100	—	MHz

4. f_T is defined as the frequency at which $|hf_e|$ extrapolates to unity.

ORDERING INFORMATION

Device	Marking	Shipping
MMBTA05	**1H**	**3000/Tape & Reel**
MMBTA06	**1GM**	**3000/Tape & Reel**

SOT-23



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

PIN 1. BASE
2. EMITTER
3. COLLECTOR