

Driver Transistors

PNP Silicon

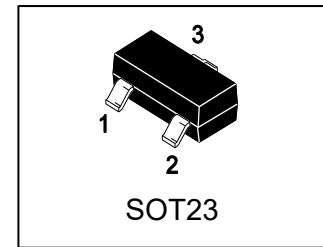
We declare that the material of product compliance with RoHS requirements.

S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

MBTA55
MBTA56
S-MBTA55
S-MBTA56

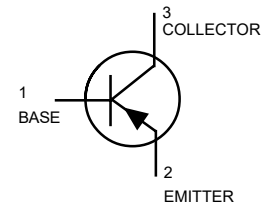
MAXIMUM RATINGS

Rating	Symbol	Value		Unit
		MBTA55	MBTA56	
Collector–Emitter Voltage	V_{CE0}	-60	-80	Vdc
Collector–Base Voltage	V_{CB0}	-60	-80	Vdc
Emitter–Base Voltage	V_{EB0}	-4.0		Vdc
Collector Current — Continuous	I_C	-500		mAdc



THERMAL CHARACTERISTICS

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



DEVICE MARKING

(S-)MBTA55 = 2H; (S-)MBTA56 = 2GM

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_C = -1.0 \text{ mAdc}, I_B = 0$)	$V_{(BR)CE0}$			Vdc
	MBTA55	-60	—	
	MBTA56	-80	—	
Emitter–Base Breakdown Voltage ($I_E = -100 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EB0}$	-4.0	—	Vdc
Collector Cutoff Current ($V_{CE} = -60\text{Vdc}, I_B = 0$)	I_{CES}	—	-0.1	μAdc
Collector Cutoff Current ($V_{CB} = -60\text{Vdc}, I_E = 0$)	I_{CBO}	—	-0.1	μAdc
	MBTA55	—	-0.1	
	MBTA56	—	-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.



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

ON CHARACTERISTICS

DC Current Gain ($I_C = -10\text{ mAdc}$, $V_{CE} = -1.0\text{ Vdc}$) ($I_C = -100\text{ mAdc}$, $V_{CE} = -1.0\text{ Vdc}$)	h_{FE}	100	—	—
Collector–Emitter Saturation Voltage ($I_C = -100\text{ mAdc}$, $I_B = -10\text{ mAdc}$)	$V_{CE(sat)}$	—	-0.25	Vdc
Base–Emitter On Voltage ($I_C = -100\text{ mAdc}$, $V_{CE} = -1.0\text{ Vdc}$)	$V_{BE(on)}$	—	-1.2	Vdc

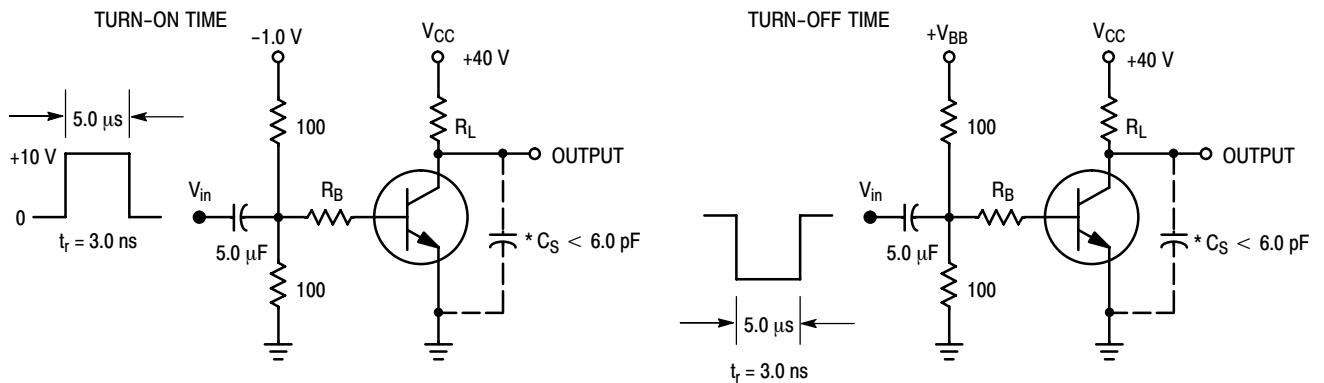
SMALL-SIGNAL CHARACTERISTICS

Current –Gain–Bandwidth Product(4) ($V_{CE} = -1.0\text{ Vdc}$, $I_C = -100\text{ mAdc}$, $f = 100\text{ MHz}$)	f_T	50	—	MHz
--	-------	----	---	-----

4. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

ORDERING INFORMATION

Device	Marking	Shipping
(S-)MBTA55	2H	3000/Tape & Reel
(S-)MBTA56	2GM	3000/Tape & Reel



*Total Shunt Capacitance of Test Jig and Connectors For PNP Test Circuits, Reverse All Voltage Polarities

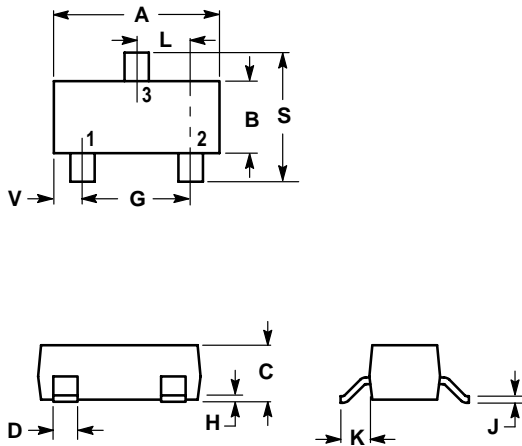
Figure 1. Switching Time Test Circuits



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

