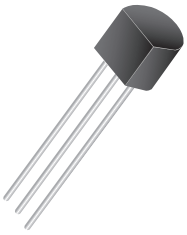
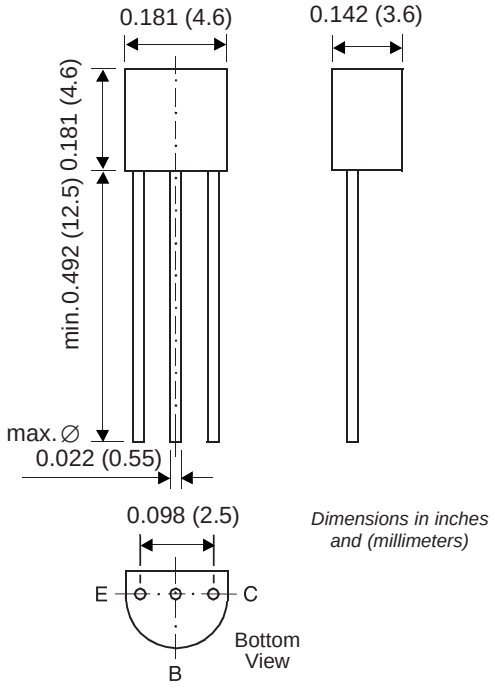
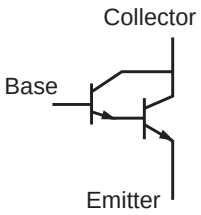
Darlington Transistors (NPN)



TO-226AA (TO-92)



Dimensions in inches and (millimeters)



Features

- NPN Silicon Darlington Transistor for switching and amplifier applications.
- High collector current
- High current gain
- These transistors are also available in the SOT-23 case with the type designation MMBTA13 & MMBTA14

Mechanical Data

Case: TO-92 Plastic Package

Weight: Approx. 0.18g

Packaging Codes/Options:

E6/Bulk – 5K per container, 20K/box
E7/4K per Ammo mag., 20K/box

Maximum Ratings and Thermal Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CES}	30	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Power Dissipation at T_A = 25°C at T_C = 25°C	P_{tot}	625 1.5	mW W
Thermal Resistance Junction to Ambient Air	$R_{\Theta JA}$	200(1)	°C/W
Thermal Resistance Junction to Case	$R_{\Theta JC}$	83.3	°C/W
Maximum Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	–55 to +150	°C

Note: (1) Valid provided that leads are kept at ambient temperature

Electrical Characteristics (T_C = 25°C unless otherwise noted)

Parameter		Symbol	Minimum	Maximum	Unit
Collector-Emitter Breakdown Voltage at I_C = 100 μA, I_B = 0		$V_{(BR)CEO}$	30	–	V
Emitter Cutoff Current V_{EB} = 10 V, I_C = 0		I_{EBO}	–	100	nA
Collector Cutoff Current V_{CB} = 30 V, I_E = 0		I_{CBO}	–	100	nA
Collector-Emitter Saturation Voltage at I_C = 100 mA, I_B = 0.1 mA		V_{CEsat}	–	1.5	V
Base-Emitter On Voltage at I_C = 100 mA, V_{CE} = 5.0V		$V_{BE(on)}$	–	2.0	V
DC Current Gain					
at V_{CE} = 5.0 V, I_C = 10 mA	MPSA13	h_{FE}	5000	–	–
	MPSA14		10000	–	–
at V_{CE} = 5.0 V, I_C = 100 mA	MPSA13		10000	–	–
	MPSA14		20000	–	–
Gain-Bandwidth Product at V_{CE} = 5.0 V, I_C = 10 mA, f = 100 MHz		f_T	125	–	MHz