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MPSA13 & MPSA14 Silicon NPN Transistor Darlington, General Purpose Amplifier, Preamp, Driver TO-92 Type Package

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

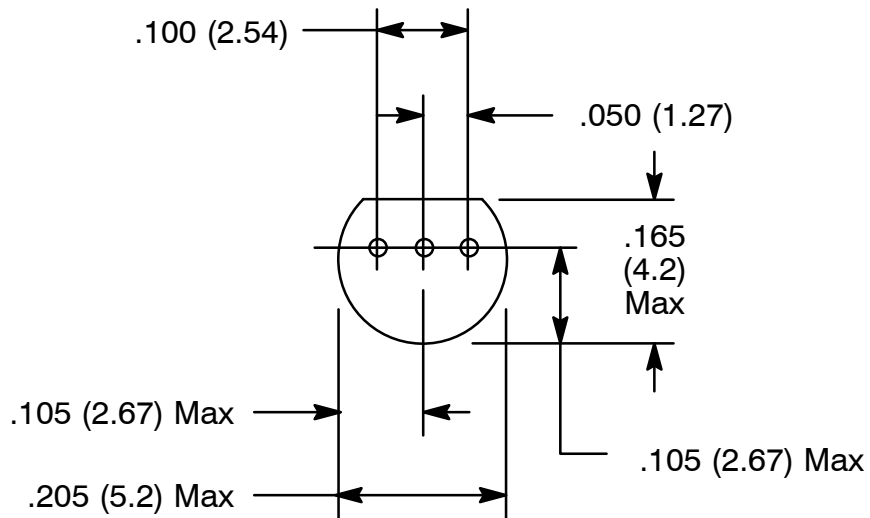
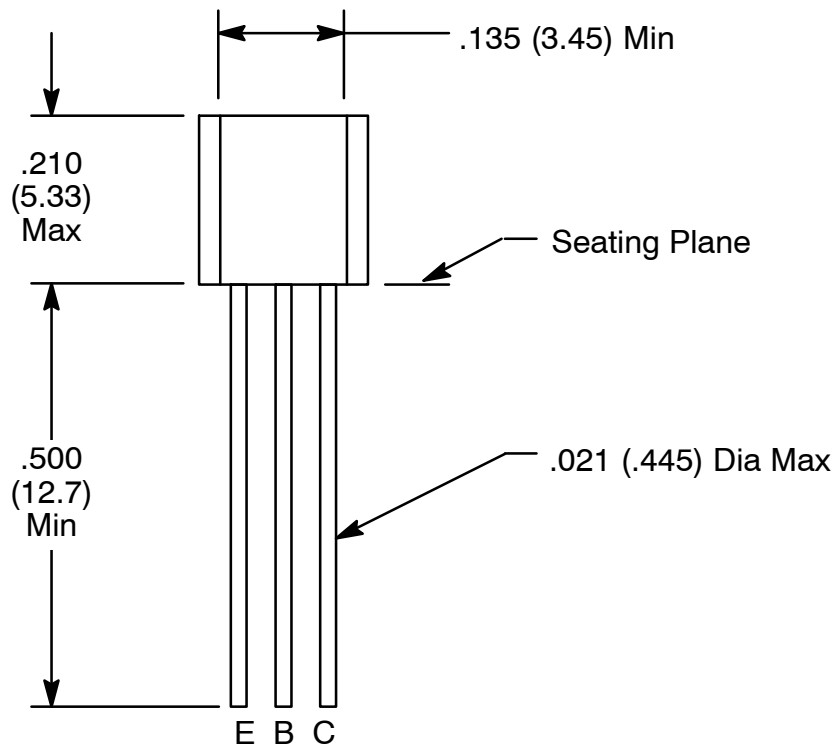
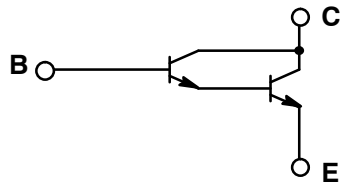
Collector-Emitter Voltage, V_{CES}	30V
Collector-Base Voltage, V_{CBO}	30V
Emitter-Base Voltage, V_{EBO}	10V
Continuous Collector Current, I_C	500mA
Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D	625mW
Derate Above 25°C	5mW/ $^\circ\text{C}$
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	1.5W
Derate Above 25°C	12mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	83.3 $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	200 $^\circ\text{C}/\text{W}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = 100\mu\text{A}$, $V_{BE} = 0$	30	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$	-	-	100	nA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 10\text{V}$, $I_C = 0$	-	-	100	nA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 10\text{mA}$, $V_{CE} = 5\text{V}$	5,000	-	-	
MPSA13			10,000	-	-	
MPSA14		$I_C = 100\text{mA}$, $V_{CE} = 5\text{V}$	10,000	-	-	
MPSA13			20,000	-	-	
MPSA14						
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$, $I_B = 0.1\text{mA}$	-	-	1.5	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 100\text{mA}$, $V_{CE} = 5\text{V}$	-	-	2.0	V
Small-Signal Characteristics						
Current Gain-Bandwidth Product	f_T	$I_C = 10\text{mA}$, $V_{CE} = 10\text{V}$, $f = 100\text{MHz}$, Note 2	125	-	-	MHz

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Note 2. $f_T = |h_{fe}| \cdot f_{test}$



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