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## LM114 & LM115 Transistor Pairs

### GENERAL DESCRIPTION

These devices contain a pair of junction-isolated NPN transistors fabricated on a single silicon substrate. This monolithic structure makes possible extremely-tight parameter matching at low cost. Further, advanced processing techniques yield exceptionally high current gains at low collector currents, virtual elimination of 'popcorn noise', low leakages and improved long-term stability.

### FEATURES

Low offset voltage—0.5mV maximum

Low drift— $2\mu\text{V}/^\circ\text{C}$  maximum from  $-55^\circ\text{C}$  to  $125^\circ\text{C}$

High current gain—500 minimum at  $10\mu\text{A}$

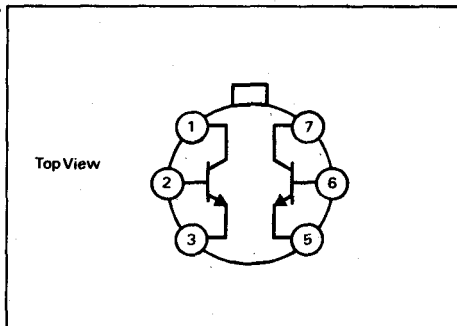
Tight beta match—10% maximum

High breakdown voltage—to 60V

Matching guaranteed over a 0V to 45V collector-base voltage range.

Although designed primarily for high breakdown voltage and exceptional DC characteristics, these transistors have surprisingly good high-frequency performance. The gain-bandwidth product is 450 MHz with 1mA collector current and 5V collector-base voltage and 22 MHz with  $10\mu\text{A}$  collector current. Collector base-capacitance is only 1.3pF at 5V.

### CONNECTION DIAGRAM



See outline drawing No. 96 for dimensions.

### REFERENCE TABLE

Code	Stock No.
LM114H	31123R
LM114AH	31124G
LM115H	31125E
LM115AH	31126C

### ABSOLUTE MAXIMUM RATINGS

	LM114 LM114A	LM115 LM115A
Collector-base voltage ( $\text{BV}_{\text{CBO}}$ )	45V	60V
Collector-Emitter voltage ( $\text{BV}_{\text{CEr}}$ )	45V	60V
Collector-collector voltage	45V	60V
Emitter-emitter voltage	45V	60V
Emitter-base voltage ( $\text{BV}_{\text{EB0}}$ )	60V	
Collector current	20mA	

Total power dissipation (Note 1)	1.8W
Operating junction Temperature	$-55^\circ\text{C}$ to $150^\circ\text{C}$
Storage temperature	$-65^\circ\text{C}$ to $150^\circ\text{C}$
Lead temperature (soldering, 10 sec)	$300^\circ\text{C}$

**Note 1:** The maximum dissipation given is for a  $25^\circ\text{C}$  case temperature. For operation under other conditions, the device must be derated based on a  $150^\circ\text{C}$  maximum junction temperature and a thermal resistance of  $70^\circ\text{C}/\text{W}$  junction to case or  $230^\circ\text{C}/\text{W}$  junction to ambient.