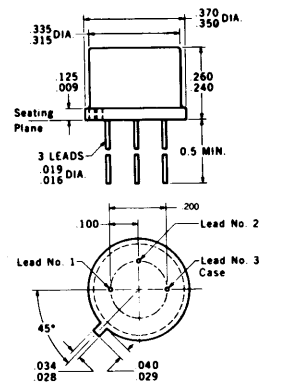
SE7001 • SE7002

NPN HIGH-VOLTAGE AUDIO / VIDEO AMPLIFIERS

DIFFUSED SILICON PLANAR* TRANSISTORS

The SE7001 and SE7002 are NPN silicon PLANAR transistors designed for use in high-voltage video amplifier and line operated radio audio output applications. They feature low output capacitance and a five watt power rating. These devices are capable of producing up to one watt in high-voltage class "A" audio stages.

PHYSICAL DIMENSIONS
in accordance with JEDEC
(TO-39) outline
(50 mil kovar)



NOTES: All dimensions in inches
Similar to package "C" except for lead length
Leads are gold plated kovar
Lead No. 3 internally connected to case
Package weight is 1.23 grams

ABSOLUTE MAXIMUM RATINGS [Note 1]

Maximum Temperatures			
Storage Temperature		−65°C to +200°C	
Operating Junction Temperature		200°C Maximum	
Lead Temperature (Soldering, 60 sec time limit)		300°C Maximum	
Maximum Power Dissipation			
Total Dissipation at 25°C Case Temperature [Notes 2 and 3]		5.0 Watts	
at 25°C Free Air Temperature [Notes 2 and 3]		0.8 Watt	
Maximum Voltages		**SE7001**	**SE7002**
V_{CBO}	Collector to Base Voltage	150 Volts	120 Volts
V_{CEO}	Collector to Emitter Voltage [Note 4]	150 Volts	120 Volts
V_{EBO}	Emitter to Base Voltage	5.0 Volts	5.0 Volts

ELECTRICAL CHARACTERISTICS (25°C free air temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	SE7001 MIN.	SE7001 TYP.	SE7001 MAX.	SE7002 MIN.	SE7002 TYP.	SE7002 MAX.	UNITS	TEST CONDITIONS
h_{FE}	DC Pulse Current Gain [Note 5]	30	60		30	60			I_C = 30 mA V_{CE} = 10 V
V_{BE} (sat)	Base Saturation Voltage		0.8	0.9		0.8	0.9	Volts	I_C = 50 mA I_B = 5.0 mA
V_{CE} (sat)	Collector Saturation Voltage		0.33	2.0		0.33	2.0	Volts	I_C = 50 mA I_B = 5.0 mA
h_{fe}	Small Signal Current Gain (f = 1.0 kHz)	25	50		25	50			I_C = 10 mA V_{CE} = 5.0 V
h_{fe}	High Frequency Current Gain (f = 20 MHz)	2.0	3.0		2.0	3.0			I_C = 30 mA V_{CE} = 10 V
BV_{CBO}	Collector to Base Breakdown Voltage	150			120				I_C = 0.1 mA I_E = 0
V_{CEO} (sust)	Collector to Emitter Sustaining Voltage [Note 4]	150			120				I_C = 30 mA (pulsed) I_B = 0

* Planar is a patented Fairchild process.

NOTES:
(1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
(2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
(3) These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 35°C/watt (derating factor of 28.6 mW/°C); junction-to-ambient thermal resistance of 219°C/watt (derating factor of 4.56 mW/°C).
(4) This rating refers to a high-current point where collector-to-emitter voltage is lowest.
(5) Pulse Conditions: length = 300 μsec; duty cycle = 1%.

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