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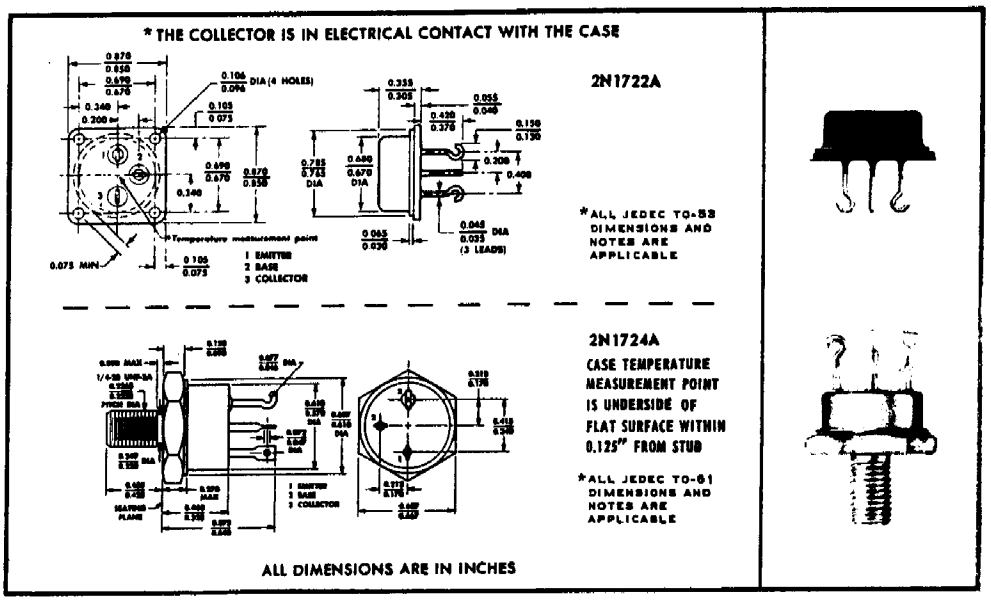
TYPES 2N1722A, 2N1724A
N-P-N TRIPLE-DIFFUSED MESA SILICON TRANSISTORS

- **50 Watts at 100°C Case Temperature**
- **Maximum r_{cs} of 0.3 Ohm at 2 Amperes I_c**
- **Maximum V_{BE} of 2 Volts at 5 Amperes I_c**
- **Minimum f_T of 10 Megacycles**

mechanical data

The transistors are in a hermetically sealed welded package with glass-to-metal seal between case and leads.



***absolute maximum ratings at 25°C case temperature (unless otherwise noted)**

Collector-Base Voltage	180 v
Collector-Emitter Voltage (See Note 1)	120 v
Emitter-Base Voltage	10 v
Collector Current, Continuous	5 a
Collector Current, Peak	7.5 a
Emitter Current, Continuous	6 a
Base Current, Continuous	1 a
Safe Continuous Operating Region at (or below) 100°C Case Temperature	See Fig. 1
Collector Power Dissipation at (or below) 25°C Free-Air Temperature (See Note 2)	3 w
Collector Power Dissipation at (or below) 100°C Case Temperature (See Note 3)	50 w
Operating Collector Junction Temperature	175°C
Storage Temperature Range	−65° to +200°C

NOTES: 1. This value applies when base-emitter diode is open-circuited.

2. Derate linearly to 175°C free-air temperature at the rate of 20 mw/C°.

3. Derate linearly to 175°C case temperature at the rate of 0.67 w/C°.

*Indicates JEDEC registered data.

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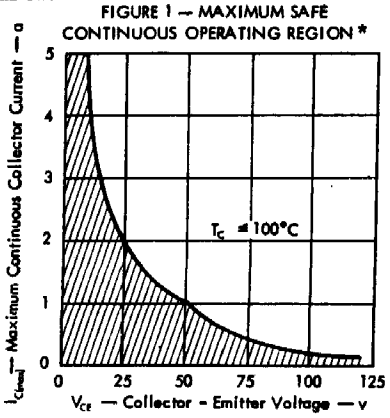
*electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MIN	MAX	UNIT
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 200$ ma, $I_B = 0$, (See Notes 4 and 7)	120		v
I_{CBO}	Collector Cutoff Current	$V_{CB} = 3$ v, $I_E = 0$		0.1	ma
I_{CES}	Collector Cutoff Current	$V_{CE} = 60$ v, $V_{BE} = 0$, (See Note 5)		0.1	ma
		$V_{CE} = 100$ v, $V_{BE} = 0$, (See Note 5)		1.0	
		$V_{CE} = 100$ v, $V_{BE} = 0$, $T_C = 150°C$, (See Note 5)		2.0	
		$V_{CE} = 180$ v, $V_{BE} = 0$, $T_C = 150°C$, (See Note 5)		10	
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 9$ v, $I_C = 0$		0.5	ma
		$V_{EB} = 10$ v, $I_C = 0$		10	
V_{EBfl}	Emitter-Base Floating Potential	$V_{CB} = 180$ v, $I_E = 0$		1.0	v
h_{FE}	Static Forward Current Transfer Ratio	$V_{CE} = 15$ v, $I_C = 100$ ma, (See Note 4)	30		
		$V_{CE} = 15$ v, $I_C = 2$ a, (See Note 4)	30	90	
		$V_{CE} = 15$ v, $I_C = 2$ a, $T_C = -55°C$, (See Note 4)	18		
		$V_{CE} = 5$ v, $I_C = 5$ a, (See Note 4)	20		
V_{BE}	Base-Emitter Voltage	$I_B = 200$ ma, $I_C = 2$ a, (See Note 4)		1.2	v
		$I_B = 500$ ma, $I_C = 5$ a, (See Note 4)		2.0	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_B = 200$ ma, $I_C = 2$ a, (See Note 4)		0.6	v
		$I_B = 200$ ma, $I_C = 2$ a, $T_C = -55°C$, (See Note 4)		0.8	
		$I_B = 500$ ma, $I_C = 5$ a, (See Note 4)		1.5	
$\lvert h_{fe} \rvert$	Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 15$ v, $I_C = 500$ ma, $f = 10$ mc, (See Note 6)	1.0		
C_{ob}	Common-Base Open-Circuit Output Capacitance	$V_{CB} = 15$ v, $I_E = 0$, $f = 1.0$ mc		550	pf

*thermal characteristics

PARAMETER		TEST CONDITIONS	MIN	MAX	UNIT
$\theta_{J\text{-}C}$	Junction-to-Case Thermal Resistance			1.5	C°/w
$\theta_{J\text{-}A}$	Junction-to-Free-Air Thermal Resistance			50	C°/w

FIGURE 1 — MAXIMUM SAFE CONTINUOUS OPERATING REGION*



NOTES: 4. These parameters must be measured using pulse techniques. PW = 300 μsec, Duty Cycle ≤ 2%.

5. For correct measurement of I_{CES}, the base must be shorted to the emitter. The current meter must not be placed in the base-emitter, short-circuit loop. I_{CES} may be used in place of I_{CBO} for circuit-stability calculations.

6. If tested without a heat sink, DC collector current must not be applied longer than 5 seconds.

7. Other pulse widths or duty cycles may be used for the measurement of collector-emitter breakdown voltage with results similar to those obtained using the conditions specified in Note 4, providing that collector current is limited to 200 ma and case temperature is limited to less than 40°C over a 5 second (or less) measurement period.

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