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2N4999

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Collector Lead No. 3

• HIGH POWER		PHYSICAL DIMENSIONS (in accordance ith JEDEC TO-59 outline)		
• BETA GUARAN	NTEED AT 3 POINTS 50 mA, 1.0 A AND 2.0 A		Base Lead No. 2	
• ISOLATED CO	LLECTOR PACKAGE NO ISOLATING HARDWARE REQUIRE)	90	
DISCRETE EMI	ITTER GEOMETRY WITH INTEGRATED FEEDBAGK RESISTORS		Emitter Lead No 1	
ABSOLUTE MAXI	MUM RATINGS (Note 1)		318 437	
Maximum Te	emperatures		⁰⁴⁰ 一点 由	
Storage	Temperature	-65°C to +200°C	3 LEADS 065 DIA	
Operating	g Junction Temperature	-65°C to +200°C	150 763	
Lead Ten	nperature (Soldering, 60 second time limit)	+300°C	120	
Maximum Po Total Dis: (See	o <mark>wer Dissipation</mark> sipation at 50°C Case Temperature, V _{CE} = —40 V 9 Maximum Permissible Power Curve and Note 4)	30 Watts	10 32 UNF	
Maximum Vo	Itages and Current			
V _{CES}	Collector to Emitter Voltage	—100 Volts		
V _{CEO}	Collector to Emitter Voltage (Note 2)	—80 Volts	NOTES: All dimensions in inches	
V _{EBO}	Emitter to Base Voltage	5.5 Volts	All leads electrically isolated from case	

All leads electrically isolated from case Package weight is 6.44 grams

2.0 Amps

ELECTRICAL CHARACTERISTICS (25°C Case Temperature unless otherwise noted)

Collector Current

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	TEST CON	CONDITIONS	
V _{CEO(sus)}	Collector to Emitter Sustaining Voltage (Notes 2 and 3)	-80			Volts	$l_{\rm C} = 100 \rm mA$	$l_{8} = 0$	
BVCES	Collector to Emitter Breakdown Voltage	-100	(Volts	$I_{\rm C} = 1.0 {\rm mA}$	$V_{\mu r} = 0$	
BV _{EBO}	Emitter to Base Breakdown Voltage	-5.5			Volts	$I_{\rm C} = 0$	$I_{\rm r} = 1.0 \rm mA$	
h _{FE}	DC Pulse Current Gain (Note 3)	20	39			$I_{\rm C} = 50 \rm{mA}$	$V_{cs} = -5.0 V$	
h _{re}	DC Pulse Current Gain (Note 3)	30	40	90		$l_{\rm C} = 1.0$ Å	$V_{CF} = -5.0 V$	
h _{FE} (-55°C)	DC Pulse Current Gain (Note 3)	15	24			$I_{c} = 1.0 \text{ A}$	$V_{cr} = -5.0 V$	
h _{FE}	DC Pulse Current Gain (Note 3)	15	28			$I_{c} = 2.0 \text{ A}$	$V_{CF} = -5.0 V$	
h _{fe}	High Frequency Current Gain (f $=$ 20 MHz)	2.5	4.8			$I_{c} = 0.2 \text{ A}$	$V_{CE} = -5.0 V$	
V _{CE(sot)}	Pulsed Collector Saturation Voltage (Note 3)		-0.38	0.46	Volts	$I_{c} = 1.0 \text{ A}$	$l_{p} = 0.1 \text{ A}$	
V _{CE(set)}	Pulsed Collector Saturation Voltage (Note 3)		-0.73	-0.85	Volts	$I_{\rm C} = 2.0$ A	I _B = 0.2 A	
V _{BE(set)}	Pulsed Base Saturation Voltage (Note 3)		-0.96	-1.2	Volts	$I_{\rm C} = 1.0 {\rm A}$	$l_{\rm R} = 0.1 {\rm A}$	
V _{BE(sat)}	Pulsed Base Saturation Voltage (Note 3)		-1.28	-1.5	Volts	$I_{c} = 2.0 \text{ A}$	$I_{\rm B} = 0.2 {\rm A}$	
V _{ве} (оп)	Pulsed Base Emitter "ON" Voltage (Note 3)			-1.5	Volts	$I_{c} = 2.0 \text{ A}$	$V_{CE} = -5.0 V$	
ICES	Collector Cutoff Current		.002	1.0	μA	$V_{cs} = -60 V$	$V_{ac} = 0$	
IEBO	Emitter Cutoff Current			1.0	μA	$l_c = 0$	$V_{c_3} = -4.0 V$	
I _{CEX} (150°C)	Collector Reverse Current			500	μA	$V_{CE} = -60 V$	$V_{rs} = -2.0 V$	
C _{cb}	Collector to Base Capacitance		46	120	pF	$I_{\rm E} = 0$	$V_{CB} = -10 V$	

NOTES:

 $I_{\rm C}$

(1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.

(2) This rating refers to a high current point where collector to emitter voltage is lowest.

(3) Pulse Conditions: length = $300 \ \mu s$; duty cycle = 1%.



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