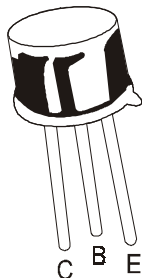


NPN SILICON PLANAR RF TRANSISTORS

2N3498, 2N3499,
2N3500, 2N3501

TO-39
Metal Can Package



ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)

DESCRIPTION	SYMBOL TEST CONDITION	2N3498 2N3499	2N3500 2N3501	UNITS
Collector Emitter Voltage	V_{CEO}	100	150	V
Collector Base Voltage	V_{CBO}	100	150	V
Emitter Base Voltage	V_{EBO}		6	V
Collector Current Continuous	I_C	500	300	mA
Power Dissipation @ Ta=25°C	P_D		1.0	W
Derate Above 25°C			5.71	mW/°C
Power Dissipation@ Tc=25°C	P_D		5.0	W
Derate Above 25°C			28.6	mW/°C
Operating And Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C

THERMAL RESISTANCE

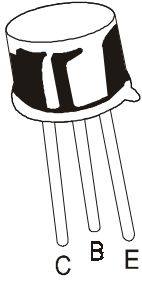
Junction to Ambient	$R_{th(j-a)}$	175	°C/W
Junction to Case	$R_{th(j-c)}$	35	°C/W

ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)

DESCRIPTION	SYMBOL TEST CONDITION	VALUE			UNITS
		MIN	TYP	MAX	
Collector Emitter Breakdown Voltage	BV_{CEO}^*				
2N3498/3499	$I_C=10mA, I_B=0$	100			V
2N3500/3501		150			V
Collector Base Breakdown Voltage	BV_{CBO} $I_C=10\mu A, I_E=0$				
2N3498/3499		100			V
2N3500/3501		150			V
Emitter Base Breakdown Voltage	BV_{EBO} $I_E=10\mu A, I_C=0$				
ALL		6			V
Collector Leakage Current					
2N3498/3499	I_{CBO} $V_{CB}=50V, I_E=0$			50	nA
2N3498/3499	$V_{CB}=50V, I_E=0, T_A=150^\circ C$			50	μA
2N3500/3501	$V_{CB}=75V, I_E=0$			50	nA
2N3500/3501	$V_{CB}=75V, I_E=0, T_A=150^\circ C$			50	μA
Emitter Leakage Current	I_{EBO}				
ALL	$V_{EB}=4V, I_C=0$			25	nA

NPN SILICON PLANAR RF TRANSISTORS

2N3498, 2N3499,
2N3500, 2N3501



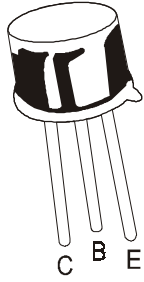
TO-39
Metal Can Package

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNITS
			MIN	TYP	MAX	
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	$I_C=10mA, I_B=1mA$			0.2	V
		$I_C=50mA, I_B=5mA$			0.25	V
		$I_C=150mA, I_B=15mA^*$			0.4	V
		$I_C=300mA, I_B=30mA^*$			0.6	V
Base Emitter Saturation Voltage	$V_{BE(Sat)}$	$I_C=10mA, I_B=1mA$			0.8	V
		$I_C=50mA, I_B=5mA$			0.9	V
		$I_C=150mA, I_B=15mA^*$			1.2	V
		$I_C=300mA, I_B=30mA^*$			1.4	V
DC Current Gain	h_{FE}^*					
		$I_C=0.1mA, V_{CE}=10V$	20			
			35			
		$I_C=1mA, V_{CE}=10V$	25			
			50			
		$I_C=10mA, V_{CE}=10V$	35			
			75			
		$I_C=150mA, V_{CE}=10V^*$	40		120	
			100		300	
		$I_C=300mA, V_{CE}=10V^*$	15			
			20			
		$I_C=300mA, V_{CE}=10V^*$	15			
			20			
		$I_C=300mA, V_{CE}=10V^*$	15			
			20			

SMALL SIGNAL CHARACTERISTICS

Input Impedance	h_{ie}					
		$I_C=10mA, V_{CE}=10V,$ $f=1KHz$	0.2		1.0	K Ω
			0.25		1.25	
Voltage Feedback Ratio	h_{re}					
		$I_C=10mA, V_{CE}=10V,$ $f=1KHz$			2.5	$\times 10^{-4}$
					4.0	
Small Signal Current Gain	$ h_{fe} $					
		$I_C=10mA, V_{CE}=10V,$ $f=1KHz$	50		300	
			75		375	

NPN SILICON PLANAR RF TRANSISTORS

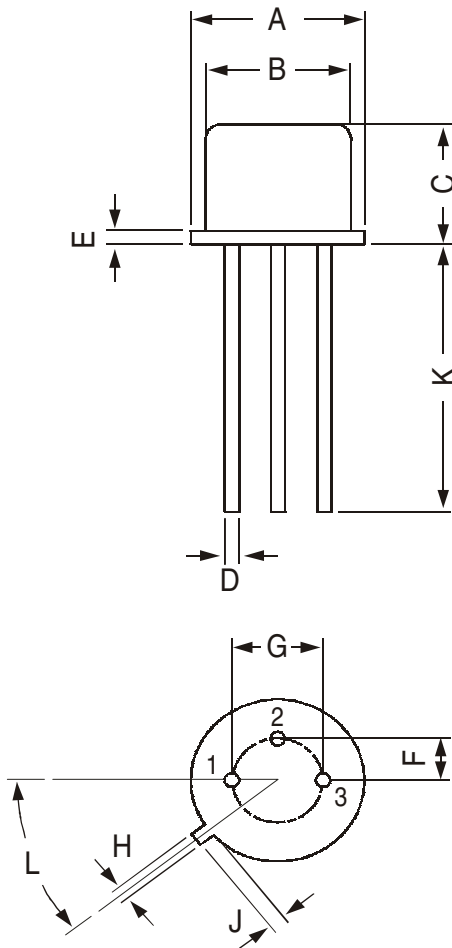


2N3498, 2N3499,
2N3500, 2N3501

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Metal Can Package

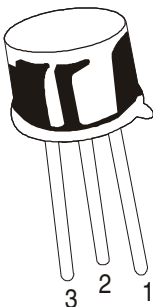
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNITS
			MIN	TYP	MAX	
Output Admittance	h_{oe}					
	2N3498/3500	$I_C=10\text{mA}, V_{CE}=10\text{V},$			100	μmhos
	2N3499/3501	$f=1\text{KHz}$			200	
Transition Frequency	f_T					
	ALL	$I_C=20\text{mA}, V_{CE}=20\text{V},$	150			MHz
		$f=100\text{MHz}$				
Output Capacitance	C_{ob}					
	2N3498/3499	$V_{CB}=10\text{V}, I_E=0, f=100\text{KHz}$			10	pF
	2N3500/3501				8	pF
Input Capacitance	C_{ib}	$V_{BE}=0.5\text{V}, I_C=0, f=100\text{KHz}$				
	ALL				80	pF
SWITCHING CHARACTERISTICS						
Delay Time	t_d			20		ns
		$I_C=150\text{mA}, I_{B1}=15\text{mA}$				
		$V_{CC}=100\text{V}, V_{EB}=2\text{V}$				
Rise Time	t_r			35		ns
Storage Time	t_s			800		ns
		$I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$				
		$V_{CC}=100\text{V}$				
Fall Time	t_s			80		ns
*Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$						

TO-39 Metal Can Package



All dimensions are in mm

DIM	MIN	MAX
A	8.50	9.39
B	7.74	8.50
C	6.09	6.60
D	0.40	0.53
E	—	0.88
F	2.41	2.66
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.70	—
L	42 DEG	48 DEG



PIN CONFIGURATION
1. EMITTER
2. BASE
3. COLLECTOR

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-39	500 pcs/polybag	540 gm/500 pcs	3" x 7.5" x 7.5"	20K	17" x 15" x 13.5"	32K	40 kgs

Disclaimer

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