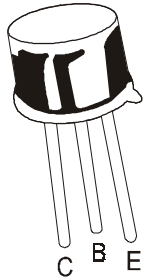


## NPN SILICON PLANAR RF TRANSISTORS

2N3498, 2N3499,  
2N3500, 2N3501



TO-39  
Metal Can Package

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

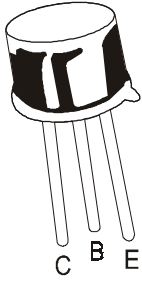
DESCRIPTION	SYMBOL TEST CONDITION	2N3498	2N3500	UNITS
		2N3499	2N3501	
Collector Emitter Voltage	$V_{CEO}$	100	150	V
Collector Base Voltage	$V_{CBO}$	100	150	V
Emitter Base Voltage	$V_{EBO}$		6	V
Collector Current Continuous	$I_C$	500	300	mA
Power Dissipation @ Ta=25°C	$P_D$		1.0	W
Derate Above 25°C			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
<b>THERMAL RESISTANCE</b>				
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	$I_{CBO}$	$V_{CB}=50V, I_E=0$		50	nA
	2N3498/3499	$V_{CB}=50V, I_E=0, T_A=150^\circ C$		50	$\mu A$
	2N3500/3501	$V_{CB}=75V, I_E=0$		50	nA
	2N3500/3501	$V_{CB}=75V, I_E=0, T_A=150^\circ C$		50	$\mu A$
Emitter Leakage Current	$I_{EBO}$	$V_{EB}=4V, I_C=0$		25	nA
	ALL				nA

# NPN SILICON PLANAR RF TRANSISTORS

2N3498, 2N3499,  
2N3500, 2N3501



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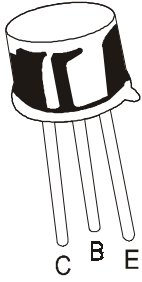
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNITS
			MIN	TYP	MAX	
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	$I_C=10mA, I_B=1mA$		0.2		V
		$I_C=50mA, I_B=5mA$		0.25		V
	2N3500/3501	$I_C=150mA, I_B=15mA^*$		0.4		V
	2N3498/3499	$I_C=300mA, I_B=30mA^*$		0.6		V
Base Emitter Saturation Voltage	$V_{BE(Sat)}$	$I_C=10mA, I_B=1mA$		0.8		V
		$I_C=50mA, I_B=5mA$		0.9		V
	2N3500/3501	$I_C=150mA, I_B=15mA^*$		1.2		V
	2N3498/3499	$I_C=300mA, I_B=30mA^*$		1.4		V
DC Current Gain	$h_{FE}^*$	$I_C=0.1mA, V_{CE}=10V$	2N3498/3500	20		
			2N3499/3501	35		
		$I_C=1mA, V_{CE}=10V$	2N3498/3500	25		
			2N3499/3501	50		
		$I_C=10mA, V_{CE}=10V$	2N3498/3500	35		
			2N3499/3501	75		
		$I_C=150mA, V_{CE}=10V^*$	2N3498/3500	40		120
			2N3499/3501	100		300
		$I_C=300mA, V_{CE}=10V^*$	2N3500	15		
			2N3501	20		
$I_C=300mA, V_{CE}=10V^*$	2N3498	15				
	2N3499	20				

## SMALL SIGNAL CHARACTERISTICS

Input Impedance	$h_{ie}$	$I_C=10mA, V_{CE}=10V,$ $f=1KHz$	2N3498/3500	0.2	1.0	K $\Omega$
			2N3499/3501	0.25	1.25	
Voltage Feedback Ratio	$h_{re}$	$I_C=10mA, V_{CE}=10V,$ $f=1KHz$	2N3498/3500		2.5	$\times 10^{-4}$
			2N3499/3501		4.0	
Small Signal Current Gain	$ h_{fe} $	$I_C=10mA, V_{CE}=10V,$ $f=1KHz$	2N3498/3500	50	300	
			2N3499/3501	75	375	

# NPN SILICON PLANAR RF TRANSISTORS

2N3498, 2N3499,  
2N3500, 2N3501



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Metal Can Package

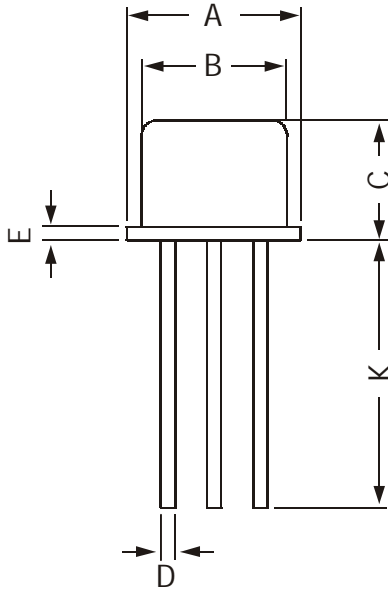
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNITS
			MIN	TYP	MAX	
Output Admittance		$h_{oe}$			100	$\mu\text{hos}$
					200	
	2N3498/3500	$I_C=10\text{mA}, V_{CE}=10\text{V},$				
	2N3499/3501	$f=1\text{KHz}$				
Transition Frequency	ALL	$f_T$	$I_C=20\text{mA}, V_{CE}=20\text{V},$	150		MHz
Output Capacitance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

2N3498, 2N3499,  
2N3500, 2N3501

TO-39

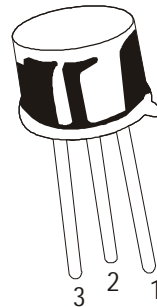
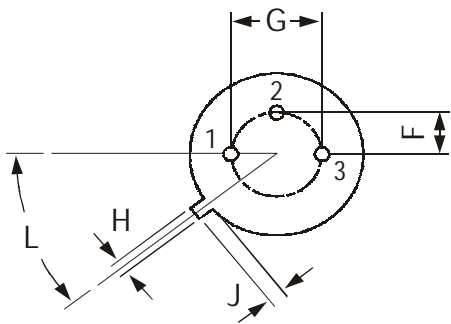
Metal Can Package

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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