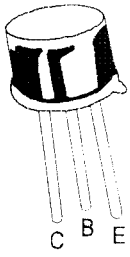
SOLID STATE INC.
46 FARRAND STREET
BLOOMFIELD, NEW JERSEY 07003 www.solidstateinc.com

NPN SILICON PLANAR RF TRANSISTORS

2N3498, 2N3499, 2N3500, 2N3501

TO-39
Metal Can Package



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

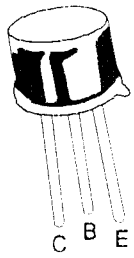
DESCRIPTION	SYMBOL	TEST CONDITION	2N3498 2N3499		2N3500 2N3501	UNITS
Collector Emitter Voltage	V_{CEO}		100		150	V
Collector Base Voltage	V_{CBO}		100		150	V
Emitter Base Voltage	V_{EBO}			6		V
Collector Current Continuous	I_C		500		300	mA
Power Dissipation @ Ta=25°C	P_D			1.0		W
Derate Above 25°C				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 MIN	VALUE TYP	VALUE MAX	UNITS
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=10μA, I_E=0				
2N3498/3499			100			V
2N3500/3501			150			V
Emitter Base Breakdown Voltage	BV_{EBO}	I_E=10μA, 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°C			50	μA
2N3500/3501		V_{CB}=75V, I_E=0			50	nA
2N3500/3501		V_{CB}=75V, I_E=0, T_A=150°C			50	μA
Emitter Leakage Current	I_{EBO}					
ALL		V_{EB}=4V, I_C=0			25	nA

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TO-39
Metal Can Package

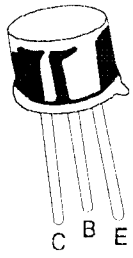
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE MIN	VALUE TYP	VALUE MAX	UNITS
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	I_C=10mA, I_B=1mA			0.2	V
		I_C=50mA, I_B=5mA			0.25	V
2N3500/3501		I_C=150mA, I_B=15mA*			0.4	V
2N3498/3499		I_C=300mA, I_B=30mA*			0.6	V
Base Emitter Saturation Voltage	$V_{BE(Sat)}$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

SMALL SIGNAL CHARACTERISTICS

Input Impedence	h_{ie}					
2N3498/3500		I_C=10mA, V_{CE}=10V,	0.2		1.0	KΩ
2N3499/3501		f=1KHz	0.25		1.25	
Voltage Feedback Ratio	h_{re}					
2N3498/3500		I_C=10mA, V_{CE}=10V,			2.5	$x10^{-4}$
2N3499/3501		f=1KHz			4.0	
Small Signal Current Gain	$\lvert h_{fe} \rvert$					
2N3498/3500		I_C=10mA, V_{CE}=10V,	50		300	
2N3499/3501		f=1KHz	75		375	

NPN SILICON PLANAR RF TRANSISTORS

2N3498, 2N3499,
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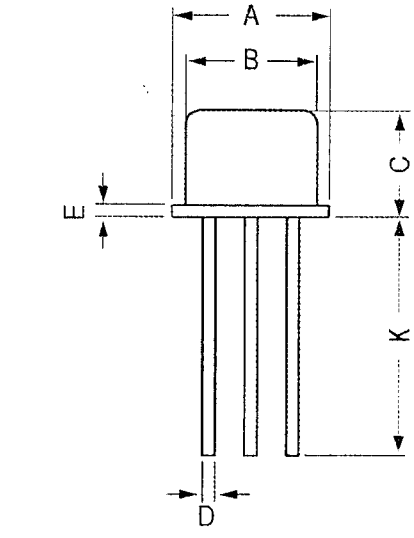


TO-39
Metal Can Package

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

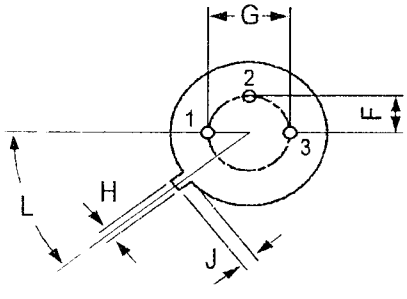
***Pulse Test: Pulse Width ≤300µs, Duty Cycle ≤2%**

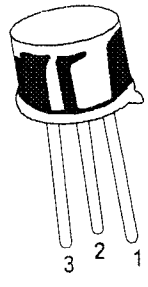
TO-39 Metal Can Package



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