

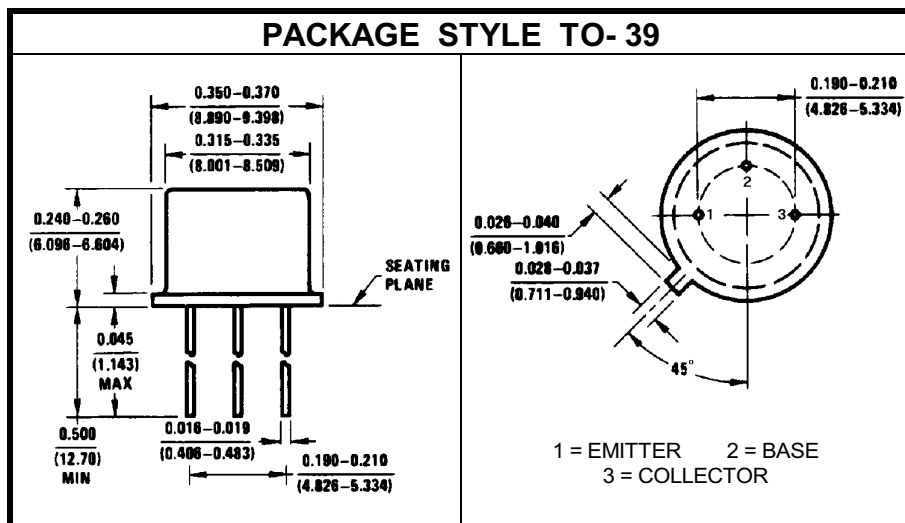
SILICON NPN TRANSISTOR

DESCRIPTION:

The **2N2219A** is Designed for General Purpose Switching and Amplifier Applications.

MAXIMUM RATINGS

I_C	800 mA
V_{CE}	40 V
P_{DISS}	3.0 W @ $T_C = 25^\circ\text{C}$
T_J	-65°C to $+200^\circ\text{C}$
T_{STG}	-65°C to $+200^\circ\text{C}$
θ_{JC}	58.3 $^\circ\text{C/W}$



STATIC CHARACTERISTICS $T_C = 25^\circ\text{C}$

SYMBOL	TEST CONDITIONS		MINIMUM	TYPICAL	MAXIMUM	UNITS
BV_{CEO}	$I_C = 10\text{ mA}$		40			V
BV_{CBO}	$I_C = 10\text{ }\mu\text{A}$		75			V
I_{CBO}	$V_{CB} = 60\text{ V}$	$T_C = 25^\circ\text{C}$ $T_C = 150^\circ\text{C}$			0.01 10	μA
I_{CEX}	$V_{CE} = 60\text{ V}$	$V_{BE} = -3.0\text{ V}$			10	nA
I_{BL}	$V_{CE} = 60\text{ V}$	$V_{BE} = -3.0\text{ V}$			20	nA
BV_{EBO}	$I_E = 10\text{ }\mu\text{A}$		6.0			V
I_{EBO}	$V_{EB} = 3.0\text{ V}$				10	nA
h_{FE}	$V_{CE} = 10\text{ V}$	$I_C = 100\text{ }\mu\text{A}$	35		300	---
		$I_C = 1.0\text{ mA}$	50			
		$I_C = 10\text{ mA}$	75			
		$T_A = 25^\circ\text{C}$ $T_A = -55^\circ\text{C}$	35			
		$I_C = 150\text{ mA}$	100			
	$V_{CE} = 1.0\text{ V}$	$I_C = 150\text{ mA}$	50			
$V_{CE(SAT)}$	$I_C = 150\text{ mA}$	$I_B = 15\text{ mA}$			0.3	V
	$I_C = 500\text{ mA}$	$I_B = 50\text{ mA}$			1.0	V
$V_{BE(SAT)}$	$I_C = 150\text{ mA}$	$I_B = 15\text{ mA}$	0.6		1.2	V
	$I_C = 500\text{ mA}$	$I_B = 50\text{ mA}$			2.0	V



DYNAMIC ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$

SYMBOL	TEST CONDITIONS			MINIMUM	TYPICAL	MAXIMUM	UNITS
f_t	$V_{CE} = 20\text{ V}$	$I_C = 20\text{ mA}$	$f = 100\text{ MHz}$	300			MHz
C_{ob}	$V_{CB} = 10\text{ V}$		$f = 100\text{ KHz}$			8.0	pF
C_{ib}	$V_{EB} = 0.5\text{ V}$		$f = 100\text{ KHz}$			25	pF
h_{ie}	$V_{CE} = 10\text{ V}$	$I_C = 1.0\text{ mA}$ $I_C = 10\text{ mA}$	$f = 1.0\text{ KHz}$	1,000 250		3,500	Ohms
h_{oe}	$V_{CE} = 10\text{ V}$	$I_C = 1.0\text{ mA}$ $I_C = 10\text{ mA}$	$f = 1.0\text{ KHz}$	5.0 25		35 200	μMhos
h_{fe}	$V_{CE} = 10\text{ V}$	$I_C = 1.0\text{ mA}$ $I_C = 10\text{ mA}$	$f = 1.0\text{ KHz}$	50 75		300	---
$r_b'c_c$	$V_{CE} = 20\text{ V}$	$I_E = 20\text{ mA}$	$f = 31.8\text{ MHz}$			150	pS
$R_{e(h_{ie})}$	$V_{CE} = 20\text{ V}$	$I_C = 20\text{ mA}$	$f = 300\text{ MHz}$			60	Ohms
t_d	$V_{CC} = 30\text{ V}$ $V_{BE} = -0.5\text{ V}$	$I_C = 150\text{ mA}$ $I_{B1} = 15\text{ mA}$				10	nS
t_r	$V_{CC} = 30\text{ V}$ $V_{BE} = -0.5\text{ V}$	$I_C = 150\text{ mA}$ $I_{B1} = 15\text{ mA}$				25	nS
t_s	$V_{CC} = 30\text{ V}$	$I_C = 150\text{ mA}$	$I_{B1} = I_{B2} = 5\text{ mA}$			225	nS
t_f	$V_{CC} = 30\text{ V}$	$I_C = 150\text{ mA}$	$I_{B1} = I_{B2} = 15\text{ mA}$			60	nS