Central™
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Manufacturers of World Class Discrete Semiconductors

2N4404
2N4405

PNP SILICON TRANSISTOR

JEDEC TO-39 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N4404, 2N4405 types are PNP Silicon Epitaxial Planar Transistors designed for general purpose and switching applications.

MAXIMUM RATINGS ($T_C = 25^oC$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	1.0	A
Power Dissipation ($T_A = 25^oC$)	P_D	1.25	W
Power Dissipation	P_D	8.75	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +200	^oC
Thermal Resistance	Θ_{JA}	140	$^oC/W$
Thermal Resistance	Θ_{JC}	25	$^oC/W$

ELECTRICAL CHARACTERISTICS ($T_C = 25^oC$ unless otherwise noted)

		2N4404			2N4405		
SYMBOL	TEST CONDITIONS	MIN	MAX		MIN	MAX	UNITS
I_{CBO}	$V_{CB} = 60V$		25			25	nA
I_{EBO}	$V_{EB} = 3.0V$		25			25	nA
BV_{CEO}	$I_C = 10mA$	80			80		V
BV_{CBO}	$I_C = 10\mu A$	80			80		V
BV_{EBO}	$I_E = 10\mu A$	5.0			5.0		V
$V_{CE(SAT)}$	$I_C = 10mA$, $I_B = 1.0mA$		0.15			0.15	V
$V_{CE(SAT)}$	$I_C = 150mA$, $I_B = 15mA$		0.2			0.2	V
$V_{CE(SAT)}$	$I_C = 500mA$, $I_B = 50mA$		0.5			0.5	V
$V_{BE(SAT)}$	$I_C = 10mA$, $I_B = 1.0mA$		0.8			0.8	V
$V_{BE(SAT)}$	$I_C = 500mA$, $I_B = 50mA$	0.85	1.2		0.85	1.2	V
$V_{BE(ON)}$	$V_{CE} = 1.0V$, $I_C = 150mA$		0.9			0.9	V
h_{FE}	$V_{CE} = 5.0V$, $I_C = 0.1mA$		30		75		
h_{FE}	$V_{CE} = 5.0V$, $I_C = 10mA$		40		100		
h_{FE}	$V_{CE} = 5.0V$, $I_C = 150mA$		40	120	100	300	
h_{FE}	$V_{CE} = 5.0V$, $I_C = 500mA$		30		50		

ELECTRICAL CHARACTERISTICS (Continued)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	$V_{CE}=20V$, $I_C=50mA$, $f=100MHz$	150	600	MHz
C_{cb}	$V_{CB}=10V$, $I_E=0$, $f=1.0MHz$		20	pF
C_{eb}	$V_{BE}=0.5V$, $I_C=0$, $f=1.0MHz$		110	pF
t_d	$V_{CC}=30V$, $V_{BE(off)}=2.0V$, $I_C=500mA$, $I_{B1}=50mA$		40	ns
t_r	$V_{CC}=30V$, $V_{BE(off)}=2.0V$, $I_C=500mA$, $I_{B1}=50mA$		60	ns
t_s	$V_{CC}=30V$, $I_C=500mA$, $I_{B1}=I_{B2}=50mA$		350	ns
t_f	$V_{CC}=30V$, $I_C=500mA$, $I_{B1}=I_{B2}=50mA$		50	ns

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