Central
Semiconductor Corp.
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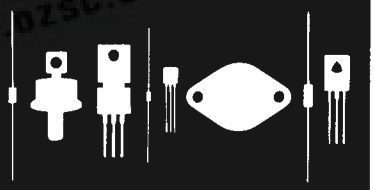

2N2903
2N2903A

NPN SILICON DUAL TRANSISTOR

JEDEC TO-78 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N2903, A types are silicon NPN dual transistors manufactured by the epitaxial planar process utilizing 2 individual chips mounted in a hermetically sealed metal case designed for differential amplifier applications.

MAXIMUM RATINGS (TA=25°C unless otherwise noted)

	SYMBOL		UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current	I_C	50	mA
Power Dissipation (One Die)	P_D	200	mW
Power Dissipation (Both Dice)	P_D	300	mW
Power Dissipation (One Die, T_C=25°C)	P_D	600	mW
Power Dissipation (Both Dice, T_C=25°C)	P_D	1200	mW
Operating and Storage Junction Temperature	T_J, T_{STG}	-65 TO +200	°C

ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_{CBO}	V_{CB}=50V		0.01	μA
I_{CBO}	V_{CB}=50V, T_A=150°C		15	μA
I_{EBO}	V_{BE}=5.0V		0.01	μA
BV_{CBO}	I_C=10μA	60		V
BV_{CEO}	I_C=10mA	30		V
BV_{EBO}	I_E=0.1μA	7.0		V
$V_{CE(SAT)}$	I_C=5.0mA, I_B=0.5mA		1.0	V
$V_{BE(SAT)}$	I_C=5.0mA, I_B=0.5mA		0.9	V
h_{FE}	V_{CE}=5.0V, I_C=10μA	60	-	
h_{FE}	V_{CE}=5.0V, I_C=10μA, T_A=-55°C	25	-	
h_{FE}	V_{CE}=5.0V, I_C=1.0mA	125	625	
h_{FE}	V_{CE}=5.0V, I_C=1.0mA, T_A=-55°C	60	-	
f_T	V_{CE}=10V, I_C=5.0mA, f=30MHz	60		MHz
C_{ob}	V_{CB}=10V, I_E=0, f=140kHz		8.0	pF
C_{ib}	V_{BE}=0.5V, I_C=0, f=140kHz		10	pF
NF	V_{CE}=5.0V, I_C=10μA, R_S=10kΩ, f=1.0kHz		7.0	dB
h_{FE1}/h_{FE2}	V_{CE}=5.0V, I_C=1.0mA (2N2903)	0.80	1.0	
h_{FE1}/h_{FE2}	V_{CE}=5.0V, I_C=1.0mA (2N2903A)	0.90	1.0	
$\lvert V_{BE1}-V_{BE2}\rvert$	V_{CE}=5.0V, I_C=10μA (2N2903)	-	10	mV
$\lvert V_{BE1}-V_{BE2}\rvert$	V_{CE}=5.0V, I_C=10μA (2N2903A)	-	5.0	mV
$\frac{\Delta(V_{BE1}-V_{BE2})}{\Delta T_A}$	V_{CE}=5.0V, I_C=10μA, T_A=-55 TO +125°C (2N2903)		20	μV/°C
$\frac{\Delta(V_{BE1}-V_{BE2})}{\Delta T_A}$	V_{CE}=5.0V, I_C=10μA, T_A=-55 TO +125°C (2N2903A)		10	μV/°C