New Jersey Semi-Conductor Products, Inc.

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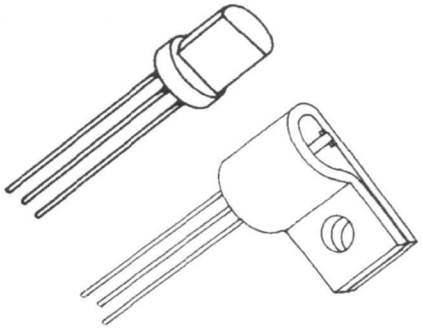
Silicon Transistors

PNP	NPN
D29E9-10	D33D29-30
D29E9J1-10J1	D33D29J1-30J1

The PNP D29E9-10 series and the NPN D33D29-30 series are silicon, planar, passivated, epitaxial transistors intended for general purpose applications. These complementary pairs are especially suited for the drive stage in high power amplifiers, and for control and television circuitry.

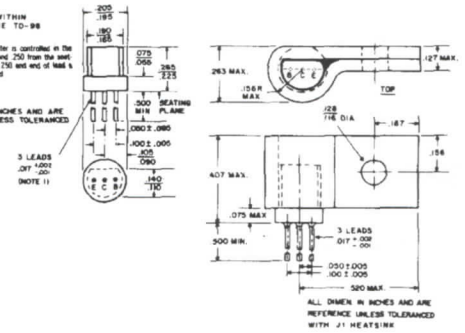


FEATURES: • Low Collector Saturation Voltage • Excellent Beta Linearity over a Wide Current Range • Heatsinking Available on All Units

NOTE: Observe proper polarity on biases for PNP's and NPN's.

absolute maximum ratings: (25°C) (unless otherwise specified)

Voltages			
Collector to Emitter	V_{CEO}	60	Volts
Emmitter to Base	V_{EBO}	5	Volts
Collector to Base	V_{CBO}	70	Volts
Collector to Emitter	V_{CES}	70	Volts
Current			
Collector (Continuous)	I_C	750	mA
Collector (Pulsed, 300 μsec., pulse width, ≤ 2% duty cycle)	I_{CM}	1000	mA
Dissipation			
Total Power (Free Air, $T_A \leq 25°C$)*	P_T	500	mW
Total Power with J1 Heatsink (Free Air, $T_A \leq 25°C$)**	P_T	700	mW
Total Power with J1 Heatsink (Case Temp., $T_C \leq 25°C$)***	P_T	1000	mW
Temperature			
Storage	T_{STG}	−65 to +150	°C
Operating	T_J	−65 to +150	°C
Lead soldering (1/16" ± 1/32" from case for 10 sec. max.)	T_L	+260	°C



*Derate 4.0 mW/°C increase in ambient temperature above 25°C. **Derate 5.6 mW/°C increase in ambient temperature above 25°C. ***Derate 8.0 mW/°C increase in case temperature above 25°C.

electrical characteristics: (25°C) (unless otherwise specified)

NOTE: Characteristics apply to both heatsinked and non-heatsinked devices.

STATIC CHARACTERISTICS		**Min.**	**Max.**	
Collector Cutoff Current (V_{CE} = 25V)	I_{CES}	—	100	nA
(V_{CE} = 25V, T_A = 100°C)	I_{CES}	—	15	μA
Forward Current Transfer Ratio				
(I_C = 2 mA, V_{CE} = 2V)				
D29E9/D33D29	h_{FE}	60	120	
D29E10/D33D30	h_{FE}	100	200	
(I_C = 500 mA, V_{CE} = 2V)				
D29E9/D33D29	** h_{FE}	20	—	
D29E10/D33D30	** h_{FE}	25	—	
Collector Emitter Breakdown Voltage				
(I_C = 10 mA)	** $V_{(BR)CEO}$	60	—	Volts
(I_C = 10 μA)	$V_{(BR)CES}$	70	—	Volts
Emitter Base Breakdown Voltage				
(I_E = 10 μA)	$V_{(BR)EBO}$	5	—	Volts
Collector Saturation Voltage				
(I_C = 500 mA, I_B = 50 mA)	** $V_{CE(SAT)}$	—	0.75	Volts
Base Saturation Voltage				
(I_C = 500 mA, I_B = 50 mA)	** $V_{BE(SAT)}$	—	1.2	Volts
DYNAMIC CHARACTERISTICS				
Output Capacitance, Common Base				
(V_{CB} = 10V, f = 1 MHz)	C_{cb}	—	15	pF
Input Capacitance, Common Base				
(V_{EB} = 0.5V, f = 1 MHz)	C_{eb}	—	55	pF
Gain Bandwidth Product				
(I_C = 50 mA, V_{CE} = 2V, f = 20 MHz)				
D29E9/D33D29	f_t	80	—	MHz
D29E10/D33D30	f_t	120	—	MHz

**Pulse Conditions: Pulse width ≤ 300μs Duty cycle ≤ 2%