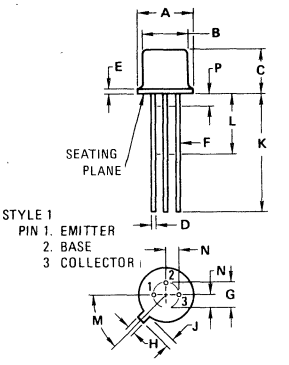
2N6365, 2N6365A (GERMANIUM)

PNP GERMANIUM RF AMPLIFIER TRANSISTORS

. . . designed for use in high gain RF amplifier applications.

- Collector-Emitter Breakdown Voltage —
  BV_{CES} = 25 Vdc (Min) @ I_C = 200 μAdc
- High Power Gain —
  G_{pe} = 30 dB (Typ) @ V_{CE} = 6.0 Vdc, f = 10 MHz
- Low Collector-Base Capacitance —
  C_{cb} = 2.0 pF (Max) @ V_{CB} = 10 Vdc

PNP GERMANIUM RF AMPLIFIER TRANSISTORS



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.32	5.33	0.170	0.210
D	0.406	0.533	0.016	0.021
E	–	0.762	–	0.030
F	0.406	0.483	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.914	1.17	0.036	0.046
J	0.711	1.22	0.028	0.048
K	12.70	–	0.500	–
L	6.35	–	0.250	–
M	45° BSC		45° BSC	
N	1.27 BSC		0.050 BSC	
P	–	1.27	–	0.050

CASE 22
TO-18

*MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage (1)	V_{CEO}	10	Vdc
Collector-Base Voltage	V_{CB}	30	Vdc
Emitter-Base Voltage	V_{EB}	1.0	Vdc
Collector Current — Continuous	I_C	100	mAdc
Total Power Dissipation @ T_A = 25°C Derate above 25°C	P_D	150 2.0	mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +100	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$(2)	500	°C/W

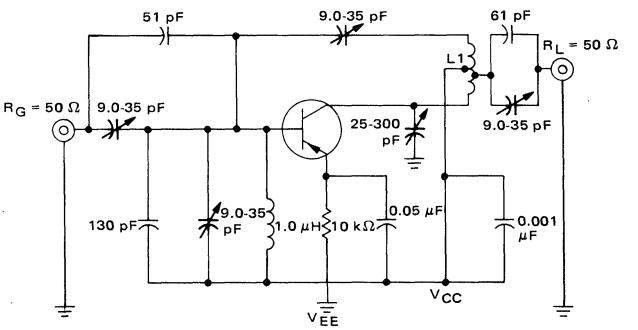
(1) Applicable from 10 μA to 10 mA
(2) $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage (1) (I_C = 200 μAdc, V_{BE} = 0)		BV_{CES}	25	–	–	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)		BV_{CBO}	30	–	–	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)		BV_{EBO}	1.0	–	–	Vdc
Collector Cutoff Current (V_{CB} = 15 Vdc, I_E = 0)		I_{CBO}	–	–	10	μAdc
Emitter Cutoff Current (V_{BE} = 0.5 Vdc, I_C = 0)		I_{EBO}	–	–	100	μAdc
ON CHARACTERISTICS (1)						
DC Current Gain (I_C = 1.0 mAdc, V_{CE} = 6.0 Vdc)	2N6365 2N6365A	h_{FE}	 20 20	 50 –	 100 80	–
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	2N6365 2N6365A	$V_{BE(sat)}$	 – –	 0.40 0.38	 0.50 0.42	Vdc
DYNAMIC CHARACTERISTICS						
Current-Gain—Bandwidth Product (I_C = 1.0 mAdc, V_{CE} = 6.0 Vdc, f = 100 MHz)		f_T	200	500	800	MHz
Collector-Base Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)		C_{cb}	–	1.0	2.0	pF
Small-Signal Current Gain (I_C = 1.0 mAdc, V_{CE} = 6.0 Vdc, f = 10 MHz)		h_{fe}	16	–	63	–
Input Resistance (I_C = 1.0 mAdc, V_{CE} = 6.0 Vdc, f = 250 MHz)		$Re(h_{ie})$	25	–	250	Ohms
FUNCTIONAL TEST						
Common-Emitter Amplifier Power Gain (V_{CE} = 6.0 Vdc, I_C = 1.0 mAdc, f = 10 MHz)		G_{pe}	25	30	–	dB

*Indicates JEDEC Registered Data.
(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

FIGURE 1 – POWER GAIN TEST CIRCUIT



L1 = 24 Turns of #28 AWG Wire
Load Tap – 5 Turns from Collector End
Supply Tap – 15 Turns from Collector End
Neutralization – 9 Turns