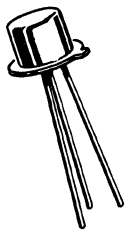
2N840 (SILICON)
2N841



NPN silicon annular transistors designed for small-signal amplifier and general purpose switching applications.

CASE 22
(TO-18)

Collector connected to case

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	45	Vdc
Collector-Emitter Voltage	V_{CES}	45	Vdc
Collector-Base Voltage	V_{CB}	45	Vdc
Emitter-Base Voltage	V_{EB}	2.0	Vdc
Collector Current	I_C	1.0	Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	500 2.86	mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	°C

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0)		BV_{CEO}	45	-	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)		BV_{CBO}	45	-	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)		BV_{EBO}	2.0	-	Vdc
Collector Cutoff Current (V_{CE} = 45 Vdc, V_{BE} = 0, R_{BE} = 5.0 k ohms)		I_{CER}	-	20	μAdc
Collector Cutoff Current (V_{CB} = 45 Vdc, I_E = 0) (V_{CB} = 45 Vdc, I_E = 0, T_A = 150°C)		I_{CBO}	- -	1.0 50	μAdc
Emitter Cutoff Current (V_{BE} = 2.0 Vdc, I_C = 0)		I_{EBO}	-	50	μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 10 mAdc, V_{CE} = 5.0 Vdc)	2N840 2N841	h_{FE}	30 60	100 400	-
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 2.2 mAdc)		$V_{CE(sat)}$	-	2.0	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain—Bandwidth Product (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 20 MHz)	2N840 2N841	f_T	1.5 2.0	- -	MHz
Output Capacitance (V_{CB} = 5.0 Vdc, I_E = 0, f = 1.0 MHz)		C_{ob}	-	15	pF
Small-Signal Current Gain (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz) (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz, T_A = -55°C)	2N840 2N841 2N840 2N841	h_{fe}	40 80 15 25	90 330 - -	-
Output Admittance (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)		h_{oe}	-	1.2	μmhos
Input Resistance (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)		h_{ib}	-	80	Ohms
Output Conductance (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)		h_{ob}	-	1.2	μmhos
Real Part of Input Impedance (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)		$Re(h_{ie})$	-	500	Ohms