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SPC-F005.DWG

REVISIONS

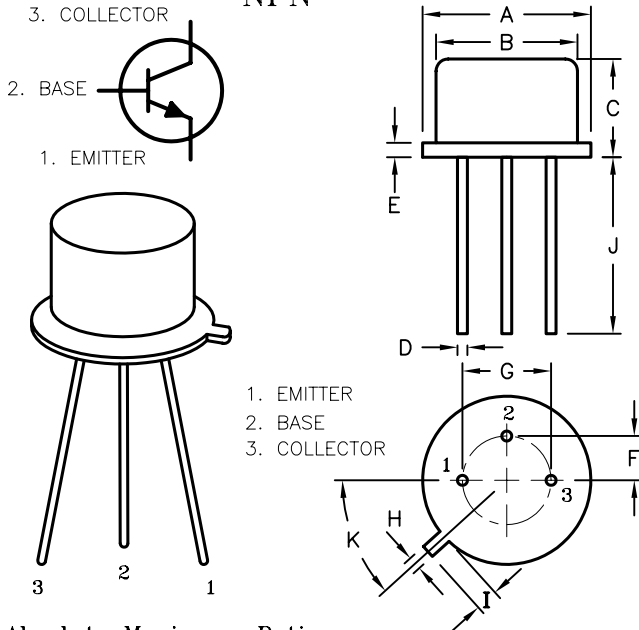
DOC. NO. SPC-F005 * Effective: 7/8/02 * DCP No: 1398

DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1262	A	RELEASED	HO	12/5/02	JWM	12/5/02	DJC	12/5/02
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

Dimensions	A	B	C	D	E	F	G	H	I	J	K
Min.	8.5	7.74	6.09	0.40	—	2.41	4.82	0.71	0.73	12.7	42'
Max.	9.39	8.5	6.6	0.53	0.88	2.66	5.33	0.86	1.02	—	48'



NPN



Description: A silicon NPN transistor in a TO-39 case intended for high voltage switching and linear amplifier applications.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 50\text{mA}, I_B = 0$, Note 1	250	—	—	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 200\text{V}, I_B = 0$	—	—	50	μA
	I_{CEX}	$V_{CE} = 300\text{V}, V_{BE} = -1.5\text{V}$	—	—	500	μA
	I_{CBO}	$V_{CB} = 250\text{V}, I_E = 0$	—	—	20	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 6\text{V}, I_C = 0$	—	—	20	μA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 20\text{mA}, V_{CE} = 10\text{V}$	40	—	160	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}, I_B = 4\text{mA}$	—	—	0.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 50\text{mA}, I_B = 4\text{mA}$	—	—	1.3	V
Small-Signal Characteristics						
Current Gain-Bandwidth Product	f_T	$I_C = 10\text{mA}, V_{CE} = 10\text{V}, f = 5\text{MHz}$	15	—	—	MHz
Output Capacitance	C_{obo}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	—	10	pF
Input Capacitance	C_{ibo}	$V_{CB} = 5\text{V}, I_C = 0, f = 1\text{MHz}$	—	—	75	pF
Small-Signal Current Gain	h_{fe}	$I_C = 5\text{mA}, V_{CE} = 10\text{V}, f = 1\text{kHz}$	25	—	—	
Real Part of Input Impedance	$Re(h_{ie})$	$V_{CE} = 10\text{V}, I_C = 5\text{mA}, f = 1\text{MHz}$	—	—	300	Ohm

Absolute Maximum Ratings:

- Collector-Emitter Voltage, $V_{CEO} = 250\text{V}$
- Collector-Base Voltage, $V_{CBO} = 300\text{V}$
- Emitter-Base Voltage, $V_{EBO} = 7\text{V}$
- Continuous Collector Current, $I_C = 1\text{A}$
- Base Current, $I_B = 500\text{mA}$
- Total Device Dissipation ($T_A = +25^\circ\text{C}$, Note 1), $P_D = 1\text{W}$
Derate above $25^\circ\text{C} = 5.7\text{mW}/^\circ\text{C}$
- Total Device Dissipation ($T_C = +25^\circ\text{C}$, Note 1), $P_D = 5\text{W}$
Derate above $25^\circ\text{C} = 28.6\text{mW}/^\circ\text{C}$
- Operating Junction Temperature Range, $T_J = -65^\circ\text{C} \sim +200^\circ\text{C}$
- Storage Temperature Range, $T_{stg} = -65^\circ\text{C} \sim +200^\circ\text{C}$
- Thermal Resistance, Junction-to-Case, $R_{thJC} = 35^\circ\text{C}/\text{W}$
- Thermal Resistance, Junction-to-Ambient, $R_{thJA} = 175^\circ\text{C}/\text{W}$

Note 1:

Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
CAUTION: The sustaining voltage must not be measured on a curve tracer.

DISCLAIMER:
ALL STATEMENTS AND TECHNICAL INFORMATION CONTAINED HEREIN ARE BASED UPON INFORMATION AND/OR TESTS WE BELIEVE TO BE ACCURATE AND RELIABLE. SINCE CONDITIONS OF USE ARE BEYOND OUR CONTROL, THE USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE INTENDED USE AND ASSUME ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH.

TOLERANCES:

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.

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DRAWING TITLE: Transistor, Bipolar, TO-39, Silicon, NPN			
SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	2N3440	35C0703.DWG	B
SCALE: NTS	U.O.M.: Millimeters	SHEET: 1 OF 1	