multicomp

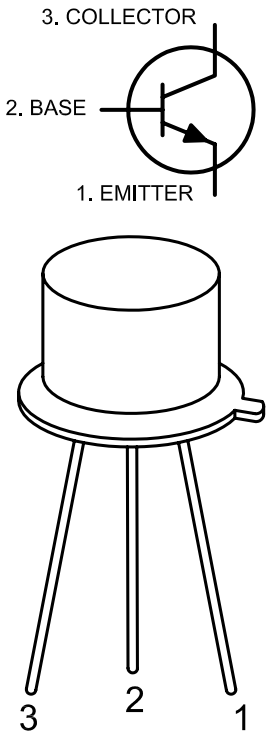
SPC-F005.DWG

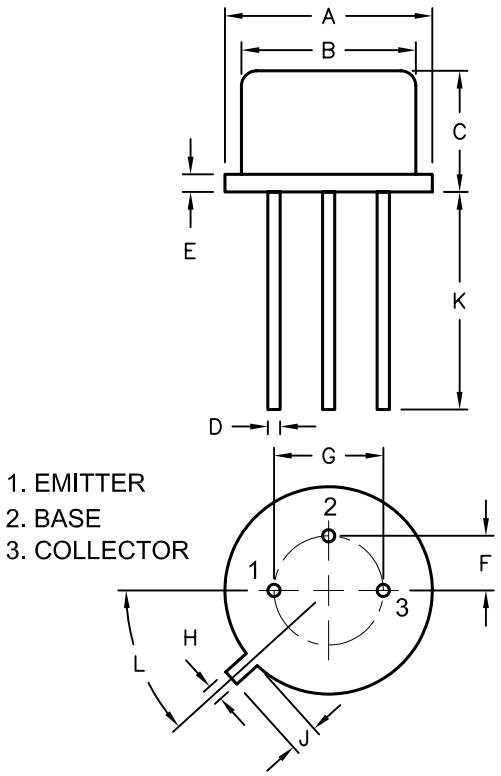
REVISIONS

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

DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1447	A	RELEASED	HYO	5/1/02	JWM	2/20/04	JC	2/20/04
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

NPN





RoHS Compliant

This is a silicon NPN transistor in a TO-39 type case designed primarily for amplifier and switching applications. This device features high breakdown voltage, low leakage current, low capacity, and beta useful over an extremely wide current range.

Absolute Maximum Ratings:

- Collector-Base Voltage, V_{CBO} = 120V
- Collector-Emitter Voltage, V_{CEO} = 65V
- Emitter-Base Voltage, V_{EBO} = 7V
- Continuous Collector Current, I_C = 1A
- Total Device Dissipation (T_A = +25°C), P_D = 800mW
  Derate above 25°C = 4.6mW/°C
- Total Device Dissipation (T_C = +25°C), P_D = 5W
  Derate above 25°C = 28.6mW/°C
- Operating Junction Temperature Range, T_J = -65° to +200°C
- Storage Temperature Range, T_{stg} = -65° to +200°C
- Thermal Resistance, Junction-to-Case, R_{thJC} = 35°C/W
- Thermal Resistance, Junction-to-Ambient, R_{thJA} = 175°C/W
- Lead Temperature (During Soldering, 1/16" from case, 60sec max), T_L = 300°C

Dimensions	A	B	C	D	E	F	G	H	J	K	L
Min.	8.50	7.74	6.09	0.40	-	2.41	4.82	0.71	0.73	12.70	42°
Max.	9.39	8.50	6.60	0.53	0.88	2.66	5.33	0.86	1.02	-	48°

TOLERANCES:

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.

DRAWN BY:	DATE:
HISHAM ODISH	5/1/02
CHECKED BY:	DATE:
JEFF MCVICKER	2/20/04
APPROVED BY:	DATE:
JOHN COLE	2/20/04

DRAWING TITLE: Transistor, Bipolar, TO-39, Metal, NPN

SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	2N2102	35C0687.DWG	B

SCALE: NTS | U.O.M.: Millimeters | SHEET: 1 OF 2

Electrical Characteristics: (T_A = +25°C Unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Max	Unit
OFF Characteristics					
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 100mA, I_B = 0	65	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100μA, I_E = 0	120	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	7	-	V
Collector Cut-Off Current	I_{CBO}	V_{CB} = 60V, I_E = 0	-	0.002	μA
		V_{CB} = 60V, I_E = 0, T_A = +150°C	-	2	μA
Emitter Cut-Off Current	I_{EBO}	V_{BE} = 5V, I_C = 0	-	0.002	μA
ON Characteristics (Note 1)					
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 0.1mA	20	-	-
		V_{CE} = 10V, I_C = 10mA	35	-	-
		V_{CE} = 10V, I_C = 150mA	40	120	-
		V_{CE} = 10V, I_C = 10mA, T_A = -55°C	20	-	-
		V_{CE} = 10V, I_C = 500mA	25	-	-
		V_{CE} = 10V, I_C = 1A	10	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 150mA, I_B = 15mA	-	0.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 150mA, I_B = 15mA	-	1.1	V
Small-Signal Characteristics					
Current Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_C = 50mA, f = 20MHz	60	-	MHz
Output Capacitance	C_{obo}	V_{CB} = 10V, I_E = 0, f = 1MHz	-	15	pF
Input Capacitance	C_{ibo}	V_{BE} = 500mV, I_C = 0, f = 1MHz	-	80	pF
Small-Signal Current Gain	h_{fe}	V_{CE} = 5V, I_C = 1mA, f = 1kHz	30	100	-
Noise Figure	NF	V_{CE} = 10V, I_C = 100μA, f = 1kHz, R_S = 1kohm	-	6	dB

Note 1. Pulse Test: Pulse Width ≦300μs, Duty Cycle ≦1%.