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SPC-F005.DWG

REVISIONS

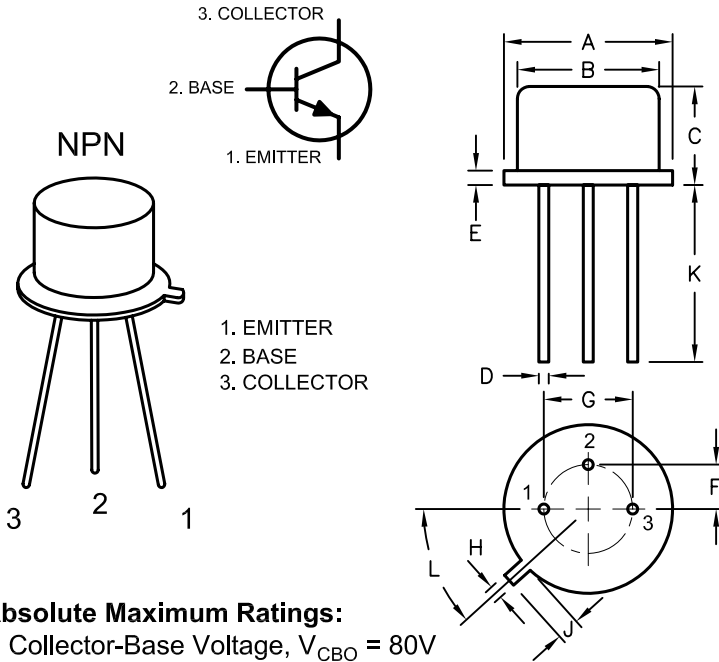
DOC. NO. SPC-F005 \* Effective: 7/8/02 \* DCP No: 1398

DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1447	A	RELEASED	HYO	5/15/02	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

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°



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:**

1. Collector-Base Voltage,  $V_{CBO} = 80V$
2. Collector-Emitter Voltage,  $V_{CEO} = 60V$
3. Emitter-Base Voltage,  $V_{EBO} = 5V$
4. Continuous Collector Current,  $I_C = 0.7A$
5. Total Device Dissipation ( $T_A = +25^\circ C$ ),  $P_D = 800mW$   
Derate above  $25^\circ C = 4.6mW/^\circ C$
6. Total Device Dissipation ( $T_C = +25^\circ C$ ),  $P_D = 5W$   
Derate above  $25^\circ C = 28.6mW/^\circ C$
7. Operating Junction Temperature Range,  $T_J = -65^\circ$  to  $+200^\circ C$
8. Storage Temperature Range,  $T_{stg} = -65^\circ$  to  $+200^\circ C$

**Electrical Characteristics: ( $T_A = +25^\circ C$  Unless otherwise specified)**

Parameter	Symbol	Test Conditions	Min	Max	Unit
<b>OFF Characteristics</b>					
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 0.1mA, I_B = 0$	60	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	80	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu A, I_C = 0$	5	-	V
Emitter Cut-Off Current	$I_{EBO}$	$V_{BE} = 4V, I_C = 0$	-	0.25	$\mu A$

**ON Characteristics, Note 1**

DC Current Gain	$h_{FE}$	$V_{CE} = 10V, I_C = 150mA$	50	-	250
		$V_{CE} = 2.5V, I_C = 150mA$	25	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150mA, I_B = 15mA$	-	1.4	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 150mA, I_B = 15mA$	-	1.0	V

**Small-Signal Characteristics**

Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10V, I_C = 50mA, f = 20MHz$	100	-	MHz
Output Capacitance	$C_{obo}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	-	12	pF
Input Capacitance	$C_{ibo}$	$V_{BE} = 500mV, I_C = 0, f = 1MHz$	-	80	pF

Note 1. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 1\%$ .

DISCLAIMER:  
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TOLERANCES:  
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.

DRAWN BY:	DATE:
HISHAM ODISH	5/15/02
CHECKED BY:	DATE:
JEFF MCVICKER	2/20/04
APPROVED BY:	DATE:
JOHN COLE	2/20/04

DRAWING TITLE: <b>Transistor, Bipolar, Metal, TO-39, NPN</b>			
SIZE	DWG. NO.	ELECTRONIC FILE	REV
<b>A</b>	<b>2N3053A</b>	<b>35C0699.DWG</b>	<b>B</b>
SCALE: NTS	U.O.M.: Millimeters	SHEET: 1 OF 1	