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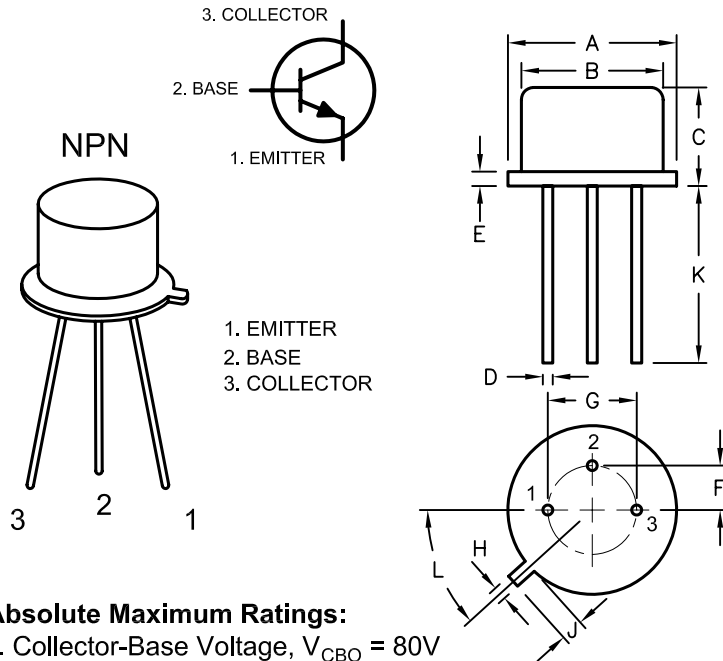
SPC-F005.DWG

## 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°



### 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,  $T_J = -65^\circ C$  to  $+200^\circ C$
8. Storage Temperature Range,  $T_{stg} = -65^\circ C$  to  $+200^\circ C$

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.

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

Parameter	Symbol	Test Conditions	Min	Max	Unit
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#### OFF Characteristics

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:  
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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APPROVED BY:	DATE:
JOHN COLE	2/20/04

#### DRAWING TITLE:

Transistor, Bipolar, Metal, TO-39, NPN

SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	2N3053A	35C0699.DWG	B
SCALE:	NTS	U.O.M.: Millimeters	SHEET: 1 OF 1