

REVISIONS

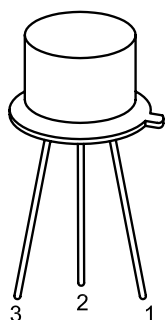
DOC. NO. SPC-F005 * Effective: 7/8/02 * DCP No: 1398

DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1262	A	RELEASED	HYO	6/13/02	JWM	6/14/02	DJC	6/14/02
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

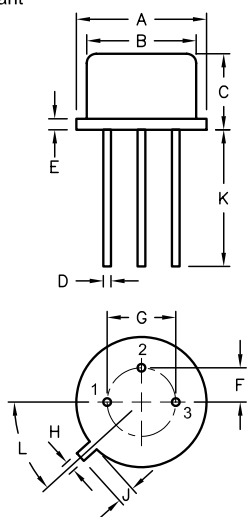


RoHS
Compliant

3. COLLECTOR
2. BASE
1. EMITTER



1. EMITTER
2. BASE
3. COLLECTOR



Absolute Maximum Ratings:

- Collector-Emitter Voltage, $V_{CEO} = 350V$
- Collector-Base Voltage, $V_{CBO} = 450V$
- Emitter-Base Voltage, $V_{EBO} = 7V$
- Continuous Collector Current, $I_C = 1A$
Base Current, $I_B = 500mA$
- Total Device Dissipation ($T_A = +25^{\circ}C$, Note 1), $P_D = 1W$
Derate above $25^{\circ}C = 5.7mW/^{\circ}C$
- Total Device Dissipation ($T_C = +25^{\circ}C$, Note 1), $P_D = 5W$
Derate above $25^{\circ}C = 28.6mW/^{\circ}C$
- Operating Junction Temperature Range, $T_J = -65^{\circ}$ to $+200^{\circ}C$
- Storage Temperature Range, $T_{stg} = -65^{\circ}$ to $+200^{\circ}C$
- Thermal Resistance, Junction-to-case, $R_{thJC} = 35^{\circ}C/W$
- Thermal Resistance, Junction-to-Ambient, $R_{thJA} = 175^{\circ}C/W$

Dimensions	A	B	C	D	E	F	G	H	J	K	L
Min.	8.5	7.74	6.09	0.40	-	2.41	4.82	0.71	0.73	12.7	42°
Max.	9.39	8.50	6.60	0.53	0.88	2.66	5.33	0.86	1.02	-	48°

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
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OFF Characteristics

Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 50mA, I_B = 0$, Not 1	350	-	-	V
Collector Cut-Off Current	I_{CEO}	$V_{CE} = 300V, I_B = 0$	-	-	20	μA
	I_{CEX}	$V_{CE} = 450V, I_{BE} = -1.5V$	-	-	500	μA
	I_{CBO}	$V_{CB} = 360V, I_E = 0$	-	-	20	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = 6V, I_C = 0$	-	-	20	μA

ON Characteristics

DC Current Gain (Note 1)	h_{FE}	$I_C = 2mA, V_{CE} = 10V$	30	-	-	-
		$I_C = 20mA, V_{CE} = 10V$	40	-	160	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50mA, I_B = 4mA$	-	-	0.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 50mA, I_B = 4mA$	-	-	1.3	V

Small-Signal Characteristics

Current Gain-Bandwidth Product	f_T	$I_C = 10mA, V_{CE} = 10V, f = 5MHz$	15	-	-	MHz
Output Capacitance	C_{obo}	$V_{CB} = 10V, I_E = 0, f = 1MHz$	-	-	10	pF
Input Capacitance	C_{ibo}	$V_{CB} = 5V, I_C = 0, f = 1MHz$	-	-	75	pF
Small-Signal Current Gain	h_{fe}	$I_C = 5mA, V_{CE} = 10V, f = 1MHz$	25	-	-	
Real Part of Input Impedance	$Re(h_{ie})$	$V_{CE} = 10V, I_C = 5mA, f = 1MHz$	-	-	300	Ohm

Note 1. Pulse Test: Pulse Width $\leq 300\mu s$, 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, NPN, Silicon

SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	2N3439	35C0702.DWG	B
SCALE: NTS		U.O.M.: Millimeters	SHEET: 1 OF 1