

DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1262	A	RELEASED	HO	3/26/03	JWM	3/26/03	DJC	3/26/03
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

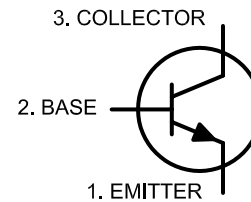
Description: A silicon NPN transistor in a TO-39 type case designed primarily for amplifier and switching applications. This device features high breakdown voltage, low leakage current, low capacity, and beta useful over an extremely wide current range.

Absolute Maximum Ratings:

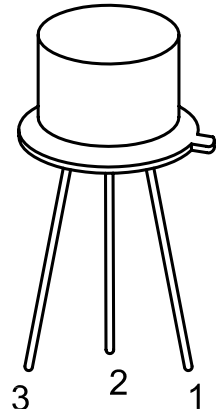
- Collector-Base Voltage, $V_{CBO} = 75V$
- Collector-Emitter Voltage, $V_{CER} = 50V$
- Emitter-Base Voltage, $V_{EBO} = 7V$
- Continuous Collector Current, $I_C = 0.5A$
- Total Device Dissipation ($T_A = +25^\circ C$), $P_D = 800mW$
Derate above $25^\circ C = 4.6mW/^\circ C$
- Total Device Dissipation ($T_C = +25^\circ C$), $P_D = 3W$
Derate above $25^\circ C = 17.15mW/^\circ C$
- 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, $R_{thJC} = 58^\circ C/W$
- Thermal Resistance, Junction-to-Ambient, $R_{thJA} = 219^\circ C/W$
- Lead Temperature (During Soldering, 1/16" from case, 60sec max), $T_L = 300^\circ C$



NPN



1. EMITTER
2. BASE
3. COLLECTOR

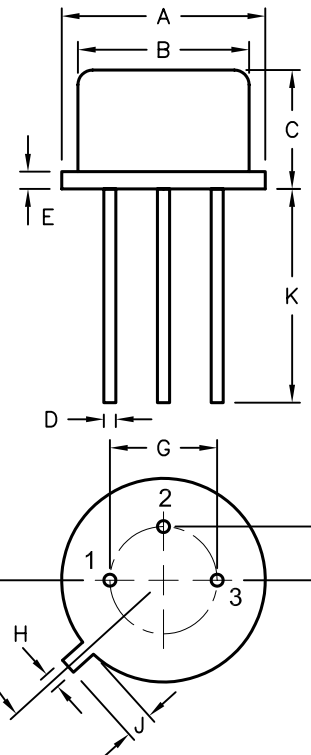


Electrical Characteristics: ($T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{CER(SUS)}$	$I_C = 100mA$, $R_{BE} 10 \text{ ohms}$, Note 1	50	—	—	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu A$, $I_E = 0$	75	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu A$, $I_C = 0$	7	—	—	V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = 60V$, $I_E = 0$	—	—	0.01	μA
		$V_{CB} = 60V$, $I_E = 0$, $T_A = +150^\circ C$	—	—	10	μA
Emitter Cut-Off Current	I_{EBO}	$V_{BE} = 5V$, $I_C = 0$	—	—	0.005	μA
ON Characteristics						
DC Current Gain	h_{FE}	$V_{CE} = 10V$, $I_C = 0.1mA$	35	—	—	—
		$V_{CE} = 10V$, $I_C = 10mA$	75	—	—	—
		$V_{CE} = 10V$, $I_C = 150mA$	100	—	300	—
		$V_{CE} = 10V$, $I_C = 500mA$	40	—	—	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150mA$, $I_B = 15mA$	—	—	1.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 150mA$, $I_B = 15mA$	—	—	1.3	V
Small-Signal Characteristics						
Current Gain-Bandwidth Product	f_T	$V_{CE} = 10V$, $I_C = 50mA$, $f = 20MHz$	70	—	—	MHz
Output Capacitance	C_{obo}	$V_{CB} = 10V$, $I_E = 0$, $f = 1MHz$	—	—	25	pF
Input Capacitance	C_{ibo}	$V_{BE} = 500mV$, $I_C = 0$, $f = 1MHz$	—	—	80	pF
Small-Signal Current Gain	h_{fe}	$V_{CE} = 5V$, $I_C = 1mA$, $f = 1kHz$	50	—	200	—
Noise Figure	NF	$V_{CE} = 10V$, $I_C = 300\mu A$, $f = 1kHz$	—	—	8	dB

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

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°



SPC-F004.DWG

TOLERANCES: UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.	DRAWN BY:	DATE:	DRAWING TITLE:			
	HISHAM ODISH	3/26/03	Transistor, Bipolar, Amplifier & Switching, NPN, TO-39			
	CHECKED BY:	DATE:	SIZE	DWG. NO.	ELECTRONIC FILE	REV
	JEFF MCVICKER	3/26/03	A	2N1711	35C0685.DWG	B
	APPROVED BY:	DATE:	SCALE: NTS		SHEET: 1 OF 1	
	DANIEL CAREY	3/26/03	U.O.M.: Millimeters			

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