multicomp

SPC-F005.DWG

REVISIONS

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

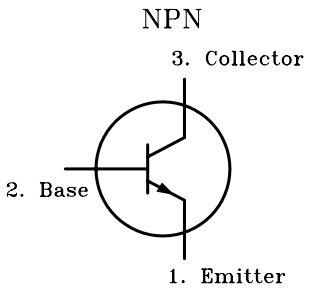
DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1262	A	RELEASED	HO	12/12/02	JWM	12/13/02	DJC	12/13/02
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

Description: A general purpose, medium power silicon NPN transistor in a TO-220 type package designed for switching and amplifier applications. This device is especially designed for series and shunt regulators and as a driver and output stage of high-fidelity amplifiers.

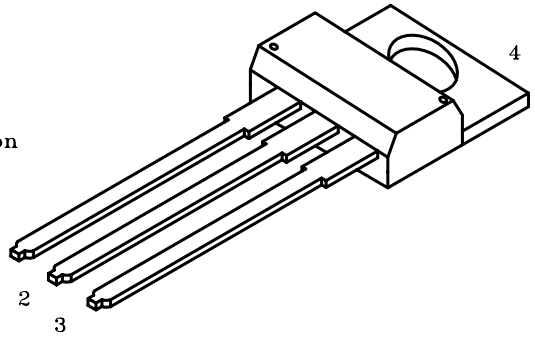
Features:
- Low Saturation Voltage

RoHS Compliant

Absolute Maximum Ratings:
- Collector-Base Voltage, V_{CBO}: 100V
- Collector-Emitter Voltage, V_{CEO}: 100V
- Emitter-Base Voltage, V_{EBO} = 5V
- Continuous Collector Current = 3A
- Continuous Base Current = 1A
- Total Device Dissipation (T_C = +25°C), P_D = 40W
  Derate Linearly Above 25°C = 0.32W/°C
- Total Device Dissipation (T_A = +25°C), P_D = 2W
  Derate Linearly Above 25°C = 0.016W/°C
- Operating Junction Temperature Range, T_{opr} = −65°C ~ +150°C
- Storage Temperature Range, T_{stg} = −65°C ~ +150°C
- Thermal Resistance, Junction-to-Case, R_{thJC}: 3.125°C/W
- thermal Resistance, Junction-to-Ambient, R_{thJA} = 62.5°C/W
- Lead Temperature (During Soldering, ⅛" (3.17mm) from case, 5 sec), T_L = +235°C

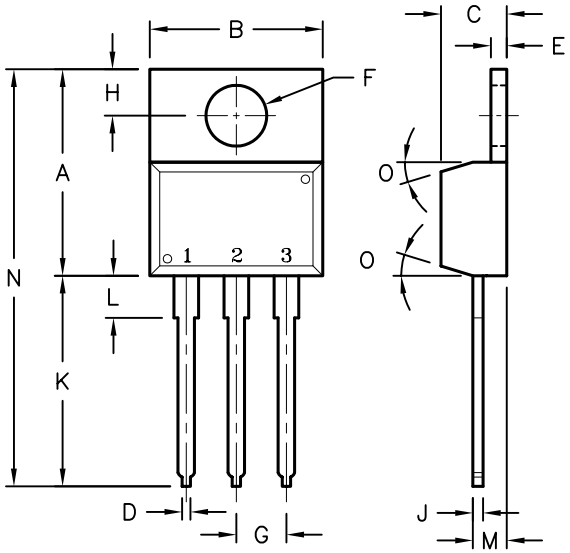


Pin Configuration
1. Base
2. Collector
3. Emitter
4. Collector



Electrical Characteristics: (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CEO}	V_{CE} = 60V, I_B = 0	–	–	0.3	mA
Emitter Cutoff Current	I_{EBO}	V_{EB} = −5V, I_C = 0	–	–	1	mA
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 30mA, I_B = 0, Note 1	100	–	–	V
DC Current Gain	h_{FE}	I_C = 1A, V_{CE} = 4V, Note 1	25	–	–	
		I_C = 3A, V_{CE} = 4V, Note 1	10	–	50	
Base-Emitter Voltage	$V_{BE(on)}$	I_C = 3A, V_{CE} = 4V, Note 1	–	–	1.8	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 3A, I_B = 375mA, Note 1	–	–	1.2	V
Gain Bandwidth Product	f_T	V_{CE} = 10V, I_C = 500mA, f = 1MHz	3	–	–	MHz
Small Signal Forward Current Transfer Ratio	$\|h_{fe}\|$	V_{CB} = 10V, I_C = 500mA, f = 1KHz	3	–	–	



Note 1: Pulsed: Pulse Duration = 300µs, Duty Factor = 0.018

Dimensions	A	B	C	D	E	F	G	H	J	K	L	M	N	O
Min.	14.42	9.63	3.56	–	1.15	3.75	2.29	2.54	–	12.70	2.80	2.03	–	7°
Max.	16.51	10.67	4.83	0.90	1.40	3.88	2.79	3.43	0.56	14.73	4.07	2.92	31.24	

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

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DRAWING TITLE: Transistor, General Purpose, Silicon, Bipolar, TO-220, NPN

SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	TIP31C	35C0641.DWG	B

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