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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
1885	A	RELEASED	BYF	02/08/06	HO	2/6/06	JWM	2/6/06

**Description:** Plastic, NPN, TO-220 power transistor General purpose amplifier and switching applications

**Features:**

- Collector Emitter Saturation Voltage  $I_C=3A, I_B=0.6A, V_{CE} = 1.2V$  (Max)
- D.C. Current Gain  $I_C=1A, V_{CE}=4V, h_{FE}=25$  (Min)



**Absolute Maximum Ratings:**

- Collector-Base Voltage,  $V_{CES} = 115V$
- Collector-Emitter Voltage,  $V_{CEO} = 100V$
- Emitter-Base Voltage,  $V_{EBO} = 5V$
- Continuous Collector Current,  $I_C = 3A$
- Base Current,  $I_B = 1A$
- Total Device Dissipation ( $T_C = +25^\circ C$ ),  $P_D = 40W$   
Derate above  $25^\circ C = 0.32mW/^\circ C$
- Operating Junction Temperature Range,  $T_J = -65^\circ C$  to  $+150^\circ C$
- Storage Temperature Range,  $T_{stg} = -65^\circ C$  to  $+150^\circ C$

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	

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

Parameter	Symbol	Test Conditions	Min	Max	Unit
<b>OFF Characteristics</b>					
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 30mA, I_B = 0$ Note 1	100	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CES}$	$I_C = 1mA, V_{BE} = 0$	115	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1mA, I_C = 0$	5	-	V
Collector Cut-Off Current	$I_{CES}$	$V_{CE} = 100V, V_{BE} = 0$	-	0.2	mA
	$I_{CEO}$	$V_{CB} = 60V, I_B = 0$	-	0.3	mA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	-	1	mA

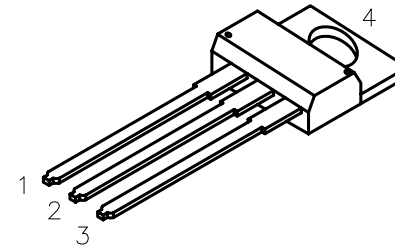
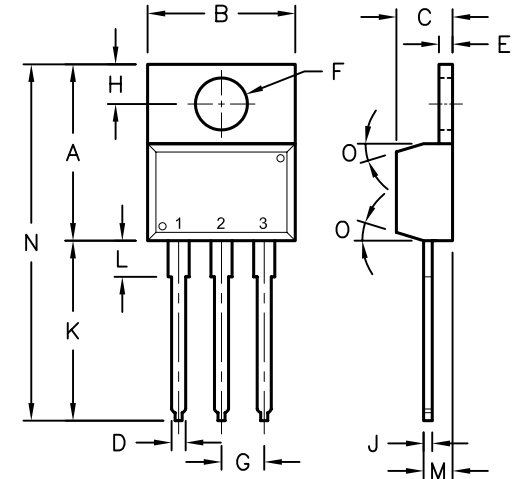
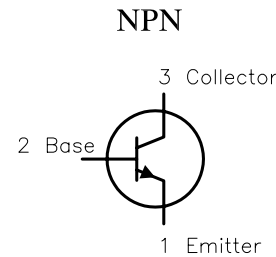
**ON Characteristics (Note 1)**

DC Current Gain	$h_{FE}$	$V_{CE} = 4V, I_C = 1A$	25	-	-
		$V_{CE} = 4V, I_C = 3A$	10	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 3A, I_B = 0.6A$	-	1.2	V
Base-Emitter On Voltage	$V_{BE(on)}$	$I_C = 3A, V_{CE} = 4V$	-	1.8	V

**Small-Signal Characteristics**

Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10V, I_C = 0.5A, f = 1MHz$	3	-	MHZ
Small-Signal Current Gain	$h_{fe}$	$V_{CE} = 10V, I_C = 0.5A, f = 1kHz$	20	-	-

Note 1. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$



**Pin Configuration:**

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

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

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DRAWING TITLE: General Purpose Power Transistor, Plastic, TO-220, NPN			
SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	BD241C	02H2179.DWG	A
SCALE: NTS		U.O.M.: MILLIMETERS	SHEET: 1 OF 1