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		REVISIONS	DOC. NO. SPC-F005 * Effective: 7/8/02 * DCP No: 1398						
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1885	Α	RELEASED	BYF	02/08/06	НО	2/6/06	JWM	2/6/06	

SPC-F005.DWG

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  $I_c=1A$ ,  $V_{cr}=4V$   $h_{rr}=25$  (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 ( $T_C = +25^{\circ}C$ ),  $P_D = 40W$

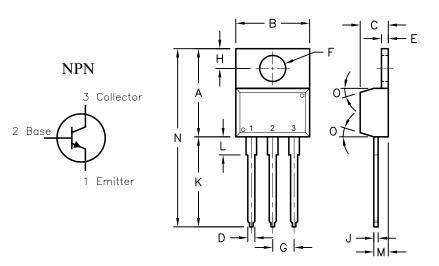
Derate above  $25^{\circ}C = 0.32 \text{mW/}^{\circ}C$ 

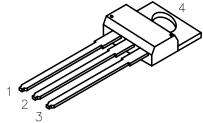
- Operating Junction Temperature Range,  $T_J = -65^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Storage Temperature Range,  $T_{stg} = -65^{\circ}\text{C}$  to +150°C

# Electrical Characteristics: (T<sub>C</sub>= +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Max	Unit
OFF Characteristics	•				
Collector—Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	$I_C$ = 30mA, $I_B$ = 0 Note 1	100	-	٧
Collector—Base Breakdown Voltage	V <sub>(BR)CES</sub>	$I_C = 1 \text{mA}, V_{BE} = 0$	115	<b>]</b> -	V
Emitter—Base Breakdown Voltage	V <sub>(BR)EBO</sub>	$I_E = 1 \text{ mA}, I_C = 0$	5	-	V
Collector Cut-Off Current	$I_{CES}$	$V_{CE} = 100V$ , $V_{BE} = 0$		0.2	mΑ
Collector Cut-Off Current	$I_{CEO}$	$V_{CB} = 60V$ , $I_{B} = 0$		0.3	mΑ
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = 5V, I_{C} = 0$	_	1	mΑ
ON Characteristics (Note 1)					
DC Current Gain	h <sub>FE</sub>	$V_{CE} = 4V, I_{C} = 1A$	25	_	_
	I IFE	$V_{CE} = 4V, I_{C} = 3A$	10	_	_
Collector—Emitter Saturation Voltage	V <sub>CE(sat)</sub>	$I_C = 3A$ , $I_B = 0.6A$	-	1.2	٧
Base—Emitter On Voltage	V <sub>BE(on)</sub>	$I_C = 3A$ , $V_{CE} = 4V$	-	1.8	٧
Small-Signal Characteristics			4		
Current Gain-Bandwidth Product	f <sub>T</sub>	$V_{CE}$ = 10V, $I_{C}$ = 0.5A, f = 1MHz	3	-	MHz
Small—Signal Current Gain	h <sub>fe</sub>	$V_{CE} = 10V$ , $I_{C} = 0.5A$ , $f = 1kHz$	20	)-	_

Dimensions	А	В	С	D	Е	F	G	Н	J	K	L	М	Ν	0
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	/





## Pin Configuration:

Compliant

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

Note 1. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%

#### 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.

DRAWN BY:	DATE:
BASAM YOUSIF	02/08/06
CHECKED BY:	DATE:
HISHAM ODISH	2/6/06
APPROVED BY:	DATE:
JEEF MCVICKER	2/6/06

### DRAWING TITLE:

General Purpose Power Transistor, Plastic, TO—220, NPN

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: [	SIZE	DWG. NO.		ELEC.	TRONIC FIL	E	REV	
6	Α	BD:	241C	02H2179.DWG				
_	SCALE	E: NTS	U.O.M.: MILLIMETERS		SHEET:	1 OF	- 1	