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SPC-F005.DWG

REVISIONS

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

DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKED	DATE	APPRVD	DATE
1447	A	RELEASED	HO	1/20/04	JW	2/20/04	JC	2/20/04
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

Description: A silicon NPN Darlington transistors in a TO-220 type case designed for general-purpose amplifier and low-speed switching applications.

Features:

- High DC Current Gain
- Monolithic Construction with Built-in Base-Emitter Shunt Resistors

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

Absolute Maximum Ratings:

- Collector-Emitter Voltage, V_{CE0} = 80V
- Collector-Base Voltage, V_{CB} = 80V
- Emitter-Base Voltage, V_{EB} = 5V
- Collector Current, I_C
 - Continuous = 5A
 - Peak = 8A
- Base Current, I_B = 120mA
- Total Power Dissipation (T_C = +25°C), P_D = 65W
 - Derate above +25°C = 0.52W/°C
- Total Power Dissipation (T_A = +25°C), P_D = 2W
 - Derate above +25°C = 0.016W/°C
- Operating Junction Temperature Range, T_J = -65° to +150°C
- Storage Temperature Range, T_{stg} = -65° to +150°C
- Thermal Resistance, Junction-to-Case, R_{thJC} = 1.92°C/W
- Thermal Resistance, Junction-to-Ambient, R_{thJA} = 62.5°C/W



Parameter	Symbol	Test Conditions	Min	Max	Unit
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OFF Characteristics

Collector-Emitter Sustaining Voltage	V _{CE0(sus)}	I _C = 100mA, I _B = 0, Note 1	80	-	V
Collector Cutoff Current	I _{CEO}	V _{CE} = 40V, I _B = 0	-	0.5	mA
	I _{CBO}	V _{CB} = 80V, I _E = 0	-	0.2	mA
Emitter Cutoff Current	I _{EBO}	V _{BE} = 5V, I _C = 0	-	2	mA

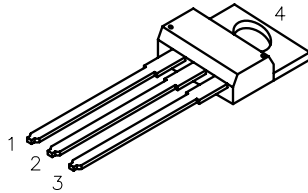
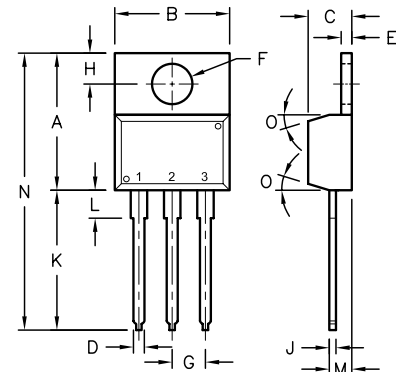
ON Characteristics (Note 1)

DC Current Gain	h _{FE}	V _{CE} = 3V, I _C = 0.5A	1000	-	
		V _{CE} = 3V, I _C = 3A	1000	-	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 3A, I _B = 12mA	-	2	V
		I _C = 5A, I _B = 20mA	-	4	V
Base-Emitter ON Voltage	V _{BE(on)}	V _{CE} = 3V, I _C = 3A	-	2.5	V

Dynamic Characteristics

Small-Signal Current Gain	h _{FE}	V _{CE} = 4V, I _C = 3A, f = 1MHz	4	-	
Output Capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 0.1MHz	-	200	pF

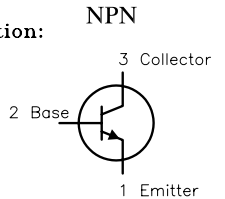
Note 1: Pulse test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.



Dimensions	A	B	C	D	E	F	G	H	J	K	L	M	N	O
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	7
Min.	14.42	9.63	3.56	-	1.15	3.75	2.29	2.54	-	12.70	2.80	2.03	-	-

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:

Transistor, Bipolar, Plastic, TO-220, NPN

SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	TIP121	35C0634.DWG	B
SCALE: NTS	U.O.M.: Millimeters	SHEET: 1	OF 1