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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
1262	A	RELEASED	HO	12/2/02	JWM	12/2/02	DJC	12/2/02
1885	B	UPDATE TO ROHS COMPLIANT	EO	02/04/06	HO	2/6/06	HO	2/6/06

**Description:** A silicon NPN transistor in a TO220 type package designed for high-voltage, high-speed power switching inductive circuits where fall time is critical. This device is particularly suited for 115V and 220V switch-mode applications such as switching regulators, inverters, motor controls, solenoid/relay drivers, and deflection circuits.

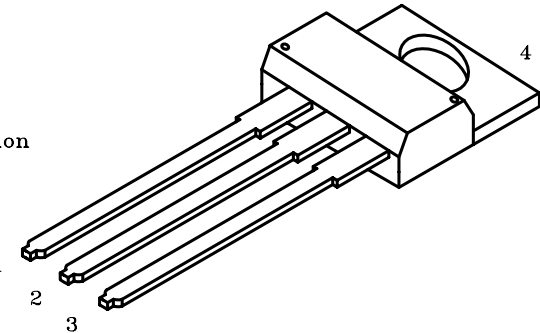
**Absolute Maximum Ratings:**

- Collector-Emitter Voltage,  $V_{CE(sus)}$ : 350V
- Collector-Base Voltage,  $V_{CB0}$ : 6V
- Collector Current,  $I_C$ :  
Continuous: 5A  
Peak (Note 1): 10A
- Base Current,  $I_B$ :  
Continuous: 2A  
Peak : 12A
- Total Power Dissipation ( $T_C = +25^\circ C$ ),  $P_D = 80W$   
Derate Above  $25^\circ C = 640mW/^\circ C$
- Operating Junction Temperature,  $T_J$ :  $-65^\circ C \sim +150^\circ C$
- Storage Temperature Range,  $T_{stg}$ :  $-65^\circ C \sim +150^\circ C$
- Thermal Resistance, Junction-to-Case,  $R_{thJC}$ :  $1.56^\circ C/W$
- Lead Temperature (During Soldering,  $\frac{1}{8}$ " from case, 5 sec),  $T_L = +275^\circ C$



**Pin Configuration**

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



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

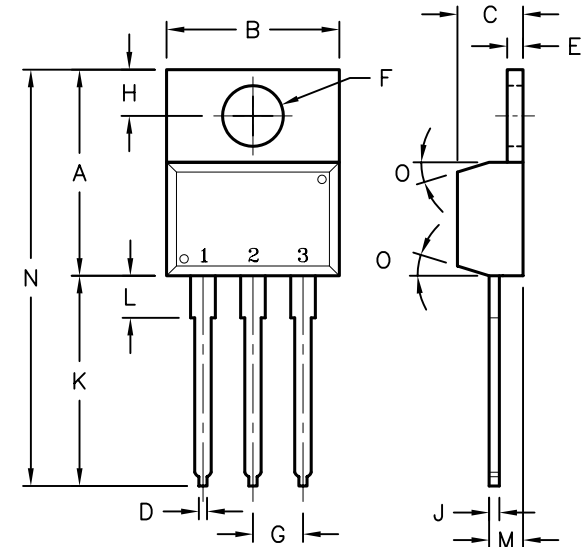
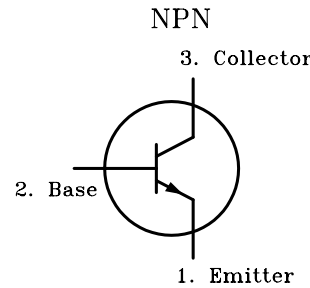
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics (Note 1)</b>						
Collector-Emitter Sustaining Voltage	$V_{CE(sus)}$	$I_C = 25mA, I_B = 0$	350	-	-	V
Collector Cutoff Current	$I_{CEV}$	$V_{CEV} = 450V, V_{BE(off)} = 1.5V$	-	-	1	mA
		$V_{CEV} = 225V, V_{BE(off)} = 1.5V, T_C = 100^\circ$	-	-	10	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 6V, I_C = 0$	-	-	1	mA
<b>ON Characteristics (Note 1)</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 10V, I_C = 2.5A$	10	-	75	
		$V_{CE} = 10V, I_C = 5A$	3	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2.5A, I_B = .5A$	-	-	1.5	V
		$I_C = 5A, I_B = 2A$	-	-	5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 2.5A, I_B = 0.5A$	-	-	1.5	V
		$I_C = 5A, I_B = 2A$	-	-	2.5	V

**Dynamic Characteristics**

Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10V, I_C = 250mA, f = 1MHz$	5	-	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_B = 0, f = 0.1MHz$	-	150	-	pF

**Switching Characteristics (Resistive Load)**

**Note 1:** Pulse test: Pulse width = 5ms, duty cycle  $\leq 10\%$



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	

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.

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DRAWING TITLE: <b>Transistor, Silicon, Bipolar, TO-220, NPN, High Voltage</b>			
SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	2N6499	35C0740.DWG	B
SCALE: NTS		U.O.M.: Millimeters	SHEET: 1 OF 1