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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
1447	A	Released	JWM	1/6/03	HO	3/26/04	JC	4/13/04
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

Description: A silicon NPN transistor in a TO-3 type case designed for use in industrial power amplifier and switching circuit applications.

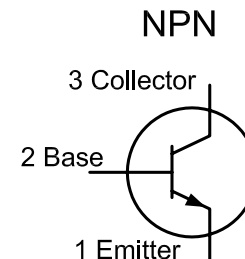
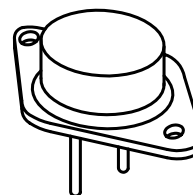
Features:

- High Collector–Emitter Sustaining Voltage
- High DC Current Gain
- Low collector–Emitter Saturation Voltage
- Fast switching times

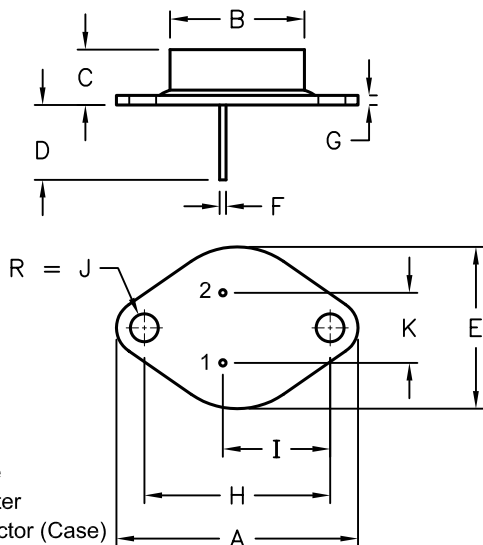


Absolute Maximum Ratings:

- Collector–Emitter Voltage, $V_{CEO} = 90V$
- Collector–Base Voltage, $V_{CB} = 150V$
- Emitter–Base Voltage, $V_{EB} = 7V$
- Collector Current, I_C
 - Continuous = 20A
 - Peak = 30A
- Base Current, $I_B = 5A$
- Total Power Dissipation ($T_C = +25^\circ C$), $P_D = 140W$
 - Derate above $25^\circ C = 0.8W/^\circ C$
- Operating Junction Temperature Range, $T_J = -65^\circ$ to $+200^\circ C$
- Storage Temperature Range, $T_{stg} = -65^\circ$ to $+200^\circ C$
- Thermal Resistance, Junction–to–Case, $R_{thJC} = 1.25^\circ C/W$



DIM	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18



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

Parameter	Symbol	Test Conditions	Min	Max	Unit
OFF Characteristics					
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 200mA$, $I_B = 0$, Note 1	90	–	V
Collector Cut–Off Current	I_{CEX}	$V_{CE} = 140V$, $V_{BE(off)} = 1.5V$	–	50	mA
		$V_{CE} = 100V$, $V_{BE(off)} = 1.5V$, $T_C = +150^\circ C$	–	10	mA
Emitter Cut–Off Current	I_{EBO}	$V_{BE} = 5V$, $I_C = 0$	–	5	mA
ON Characteristics (Note 1)					
DC Current Gain	h_{FE}	$V_{CE} = 5V$, $I_C = 12A$	20	100	–
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 20A$, $I_B = 5A$	–	2.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 20A$, $I_B = 5A$	–	3.3	V
Switching Characteristics					
Rise Time	t_r		–	.5	μs
Storage Time	t_s	$V_{CC} = 30V$, $I_C = 12A$, $I_{B1}=I_{B2}=1.2A$	–	1.5	μs
Fall Time	t_f		–	.5	μs

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

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:
Jeff McVicker	1/6/03
CHECKED BY:	DATE:
Hisham Odish	3/26/04
APPROVED BY:	DATE:
John cole	4/13/04

DRAWING TITLE:				
Transistor, Bipolar, Metal, TO–3, NPN				
SIZE	DWG. NO.	ELECTRONIC FILE		REV
A	2N5038	35C0719.DWG		B
SCALE: NTS		U.O.M.: Millimeters	SHEET: 1 OF 1	