

DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1447	A	RELEASED	HO	5/6/03	JWM	5/6/03	DJC	5/6/03
1885	B	UPDATED TO ROHS COMPLIANCE	EO	02/03/06	HO	2/6/06	HO	2/6/06

**Description:** High voltage, TO-3, NPN, Silicon, Power Transistor. Designed for high voltage inverters, switching regulators and line - operated amplifier applications. Especially well suited for switching power supply applications in associated consumer products.

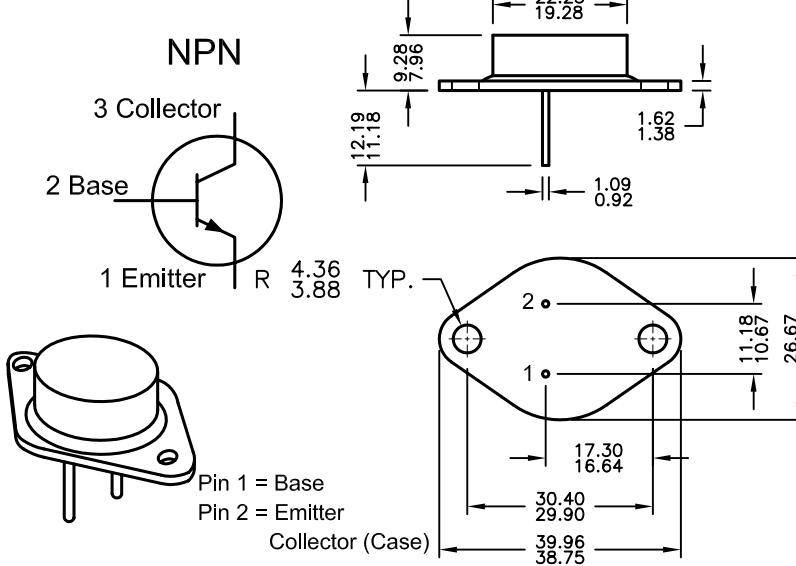
**Features:**

- Low Collector Emitter Saturation Voltage:  $V_{CE(sat)}$  1.5V(Max) @  $I_c = 3A$
- Current Gain-Bandwidth Product:  $f_T = 5MHz$  (Min) @  $I_c = 0.3A$



**Absolute Maximum Ratings:**

- Collector-Base Voltage,  $V_{CBO} = 700V$
- Collector-Emitter Voltage,  $V_{CEO} = 350V$
- Emitter-Base Voltage,  $V_{EBO} = 8V$
- Continuous Collector Current,  $I_c = 8A$
- Base Current,  $I_B = 4A$
- Total Device Dissipation ( $T_c = +25^\circ C$ ),  $P_D = 125W$   
Derate above  $25^\circ C = 0.714mW/^\circ C$
- Operating Junction Temperature Range,  $T_j = -65^\circ$  to  $+200^\circ C$
- Storage Temperature Range,  $T_{stg} = -65^\circ$  to  $+200^\circ C$



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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage (Note1)	$V_{(BR)CEO}$	$I_c = 100mA, I_B = 0$	350	-	-	V
Collector Cut-Off Current	$I_{CEX}$	$V_{CE} = 700V, V_{EB(off)} = 1.5V$	-	-	0.5	mA
	$I_{CEO}$	$V_{CB} = 350V, I_B = 0$	-	-	0.5	mA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = 8V, I_c = 0$	-	-	1	mA
<b>ON Characteristics (Note 1)</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_c = 3A$	12	-	60	-
		$V_{CE} = 5V, I_c = 8A$	3	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c = 3A, I_B = 0.6A$	-	-	1.5	V
		$I_c = 8A, I_B = 2.67A$	-	-	5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_c = 8A, I_B = 2.67A$	-	-	2.5	V
Base-Emitter On Voltage	$V_{BE(on)}$	$I_c = 3A, V_{CE} = 5V$	-	-	1.5	V
<b>Small-Signal Characteristics</b>						
Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10V, I_c = 0.3A, f = 1MHz$	5	-	-	MHz
Output Capacitance	$C_{obo}$	$V_{CB} = 10V, I_E = 0, f = .1MHz$	-	-	250	pF
<b>Switching Characteristics</b>						
Rise Time	$t_r$	$V_{CC} = 125V, I_c = 3A, I_B = 0.6A$	-	-	0.6	us
Storage Time	$t_s$	$V_{CC} = 125V, I_c = 3A, I_{B1} = .6, I_{B2} = 1.5A$	-	-	1.6	us
Fall Time	$t_f$	$V_{CC} = 125V, I_c = 3A, I_B = 0.6A$	-	-	0.4	us

Note 1. Pulse Test: Pulse Width  $\leq 300\mu s$ , 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.

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DRAWING TITLE: Transistor, Bipolar, TO-3, NPN, 8 A, 350-700 V, 125 W  
SIZE DWG. NO. A 2N6308 ELECTRONIC FILE 01H1389.DWG REV B  
SCALE: NTS U.O.M.: Millimeters SHEET: 1 OF 1