



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 : 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 ($T_C = +25^\circ\text{C}$), P_D	: 125W
Derate above 25°C	: 0.714mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	: -65°C to $+200^\circ\text{C}$
Storage Temperature Range, T_{stg}	: -65°C to $+200^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
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OFF Characteristics

Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\text{mA}, I_B = 0$	350	-	V
Collector Cut-Off Current	I_{CEX}	$V_{CE} = 700\text{V}, V_{EB(off)} = 1.5\text{V}$	-	0.5	mA
	I_{CEO}	$V_{CB} = 350\text{V}, I_B = 0$	-	0.5	
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = 8\text{V}, I_C = 0$	-	1	

ON Characteristics (Note 1)

DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 3\text{A}$	12	60	-
		$V_{CE} = 5\text{V}, I_C = 8\text{A}$	3	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 0.6\text{A}$	-	1.5	V
		$I_C = 8\text{A}, I_B = 2.67\text{A}$	-	5	
Base- Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 8\text{A}, I_B = 2.67\text{A}$	-	2.5	
Base-Emitter On Voltage	$V_{BE(on)}$	$I_C = 3\text{A}, V_{CE} = 5\text{V}$	-	1.5	

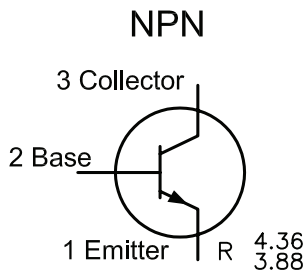
Small-Signal Characteristics

Current Gain-Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 0.3A, f = 1 \text{ MHz}$	5	-	MHz
Output Capacitance	C_{obo}	$V_{CB} = 10V, I_E = 0, f = 0.1 \text{ MHz}$	-	250	pF

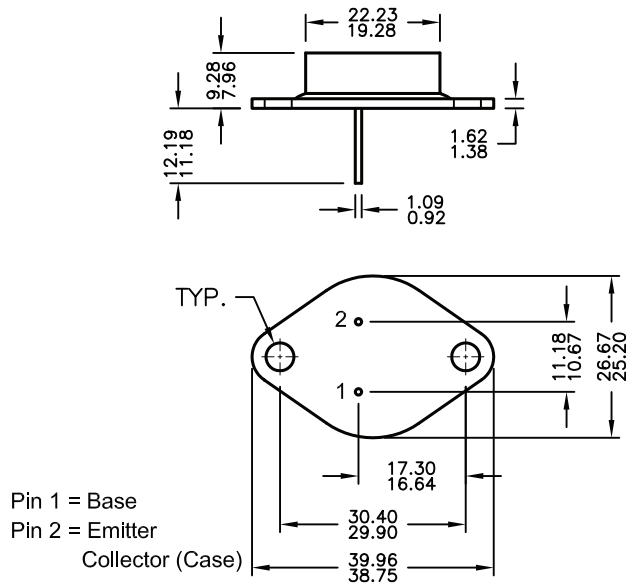
Switching Characteristics

Rise Time	t_r	$V_{CC} = 125V, I_C = 3A, I_B = 0.6A$	-	0.6	us
Storage Time	t_s	$V_{CC} = 125V, I_C = 3A, I_{B1} = 0.6, I_{B2} = 1.5A$	-	1.6	us
Fall Time	t_f		-	0.4	us

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



Dimensions : Millimetres



Part Number Table

Description	Part Number
Transistor, Bipolar, TO-3, NPN, 8A, 350-700V, 125W	2N6308

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