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2N6609
Silicon PNP Transistor
Audio Amplifier Output
TO–3 Type Package

Description:

The 2N6609 is a silicon PNP power transistors in a TO–3 type package designed for high power audio, disk head positioners, and other linear applications. It can also be used in power switching circuits such as relay or solenoid drivers, DC to DC converters or inverters.

Features:

- High Safe Operating Area 150W @ 100V
- Completely Characterized for Linear Operation
- High DC Current Gain and Low Saturation Voltage:
  h_{FE} = 15 (Min) @ 8A, 4V
  $V_{CE(sat)}$ = 1.4V (Max) @ I_C = 8A, I_B = 0.8A

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

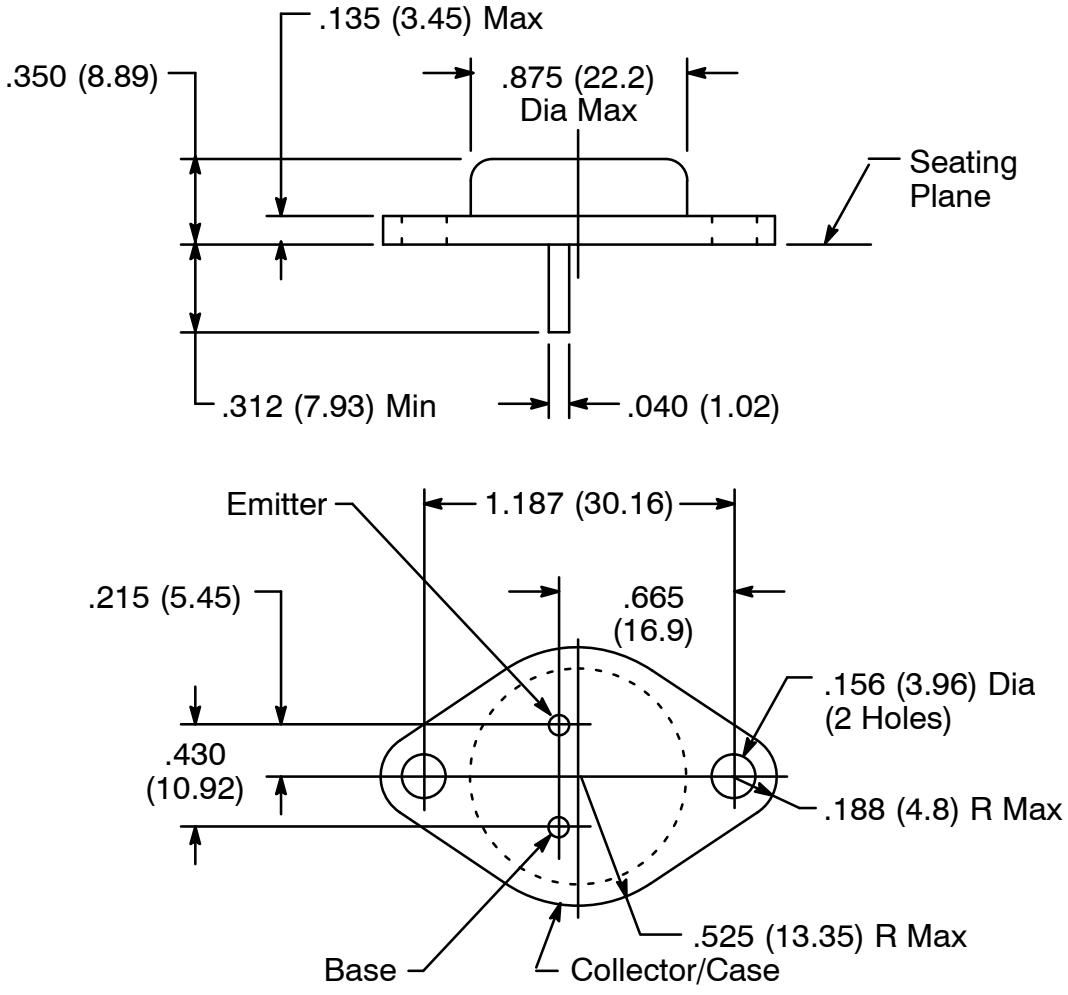
Collector–Emitter Voltage, V_{CEO} 140V
Collector–Emitter Voltage, V_{CEX} 160V
Collector–Base Voltage, V_{CBO} 160V
Emitter–Base Voltage, V_{EBO} 7V
Collector Current, I_C
  Continuous 16A
  Peak (Note 1) 30A
Base Current, IB
  Continuous 4A
  Peak (Note 1) 15A
Total Power Dissipation (T_C = +25°C), P_D 150W
  Derate Above +25°C . . . . . 0.855W/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.17°C/W

Note 1. Pulse Test: Pulse Width = 5ms, Duty Cycle ≤ 10%.

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics (Note 1)						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 0.2A, I_B = 0	140	–	–	V
Collector–Emitter Sustaining Voltage	$V_{CEX(sus)}$	I_C = 0.1A, $V_{BE(off)}$ = 1.5V, R_{BE} = 100Ω	160	–	–	V
	$V_{CER(sus)}$	I_C = 0.2A, R_{BE} = 100Ω	150	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 120V, I_B = 0	–	–	10	mA
	I_{CEX}	V_{CE} = 140V, $V_{BE(off)}$ = 1.5V	–	–	2	mA
		V_{CE} = 140V, $V_{BE(off)}$ = 1.5V, T_C = +150°C	–	–	10	mA
	I_{CBO}	V_{CB} = 140V, I_E = 0	–	–	2	mA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 7V, I_C = 0	–	–	5	mA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	V_{CE} = 4V, I_C = 8A	15	–	60	
		V_{CE} = 4V, I_C = 16A	5	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 8A, I_B = 800mA	–	–	1.4	V
		I_C = 16A, I_B = 3.2A	–	–	4.0	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 8A, V_{CE} = 4V	–	–	2.2	V
Dynamic Characteristics						
Magnitude of Common–Emitter Small–Signal, Short–Circuit, Forward Current Transfer Ratio	$\|h_{fe}\|$	I_C = 1A, f = 50kHz	4	–	–	
Small–Signal Current Gain	h_{fe}	V_{CE} = 4V, I_C = 1A, f = 1kHz	40	–	–	
Second Breakdown Characteristics						
Second Breakdown Collector Current with Base Forward Biased	$I_{S/b}$	t = 1sec (non–repetitive), V_{CE} = 100V	1.5	–	–	A

Note 1. Pulse Test: Pulse Width = 5ms, Duty Cycle ≤ 10%.


.135 (3.45) Max
.350 (8.89)
.875 (22.2)
Dia Max
Seating
Plane
.312 (7.93) Min
.040 (1.02)
Emitter
1.187 (30.16)
.215 (5.45)
.665
(16.9)
.156 (3.96) Dia
(2 Holes)
.430
(10.92)
.188 (4.8) R Max
.525 (13.35) R Max
Base
Collector/Case