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2N6385 Silicon NPN Transistor Darlington Power Amplifier TO-3 Type Package

Description:

The 2N6385 is a silicon NPN Darlington transistor in a TO-3 type case designed for use in low and medium frequency power applications such as power switching, audio amplifier, hammer driver, and shunt and series regulator.

Features:

- High Gain Darlington Performance
- DC Current Gain: $h_{FE} = 3000$ (Typ) @ $I_C = 5A$

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	80V
Collector–Base Voltage, V_{CBO}	80V
Emitter–Base Voltage, V_{EBO}	5V
Collector Current, I_C	
Continuous	10A
Peak	15A
Base Current, I_B	250mA
Total Power Dissipation ($T_C = +25^\circ C$), P_D	100W
Derate Above $25^\circ C$	0.571W/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ C$
Thermal Resistance, Junction–to–Case, R_{thJC}	1.75 $^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 200mA, I_B = 0$, Note 1	80	–	–	V
Collector–Emitter Leakage Current	I_{CEO}	$V_{CE} = 80V, I_B = 0$	–	–	1.0	mA
		$V_{CE} = 80V, V_{BE(off)} = 1.5V$	–	–	0.3	mA
		$V_{CE} = 80V, V_{BE(off)} = 1.5V, T_C = +125^\circ C$	–	–	3.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$	–	–	10	mA

Note 1. Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2%

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$V_{CE} = 3\text{V}, I_C = 5\text{A}$	1000	-	20000	
		$V_{CE} = 3\text{V}, I_C = 10\text{A}$	100	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 10\text{mA}$	-	-	2.0	V
		$I_C = 10\text{A}, I_B = 100\text{mA}$	-	-	3.0	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 5\text{A}, V_{CE} = 3\text{V}$	-	-	2.8	V
		$I_C = 10\text{A}, V_{CE} = 3\text{V}$	-	-	4.5	V
Dynamic Characteristics						
Small-Signal Current Gain	h_{fe}	$V_{CE} = 5\text{V}, I_C = 1\text{A}, f = 1\text{KHz}$	1000	-	-	
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	200	pF

Note 1. Pulse Test: Pulse Width = $300\mu\text{s}$, Duty Cycle = 2%

