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2N6057 Silicon NPN Transistor Darlington Power Amplifier TO-3 Type Package

Description:

The 2N6057 is a silicon NPN Darlington transistor in a TO-3 type case designed for general-purpose amplifier and low-frequency switching applications.

Features:

- High DC Current Gain: $h_{FE} = 3500$ Typ @ $I_C = 5A$

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	60V
Collector-Base Voltage, V_{CBO}	60V
Emitter-Base Voltage, V_{EBO}	5V
Collector Current, I_C	
Continuous	12A
Peak	20A
Base Current, I_B	200mA
Total Power Dissipation ($T_C = +25^\circ C$), P_D	150W
Derate Above $25^\circ C$	0.857W/ $^\circ C$
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}	1.17 $^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0$, Note 1	60	-	-	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 30V, I_B = 0$	-	-	1.0	mA
		$V_{CE} = 60V, V_{BE(off)} = 1.5V$	-	-	0.5	mA
	$V_{CE} = 60V, V_{BE(off)} = 1.5V, T_A = +150^\circ C$	-	-	5.0	mA	
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5V, I_C = 0$	-	-	2.0	mA

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

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}	$V_{CE} = 3\text{V}, I_C = 6\text{A}$	750	-	18000	
		$V_{CE} = 3\text{V}, I_C = 12\text{A}$	100	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 6\text{A}, I_B = 24\text{mA}$	-	-	2.0	V
		$I_C = 12\text{A}, I_B = 120\text{mA}$	-	-	3.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 12\text{A}, I_B = 120\text{mA}$	-	-	4.0	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$V_{CE} = 3\text{V}, I_C = 6\text{A}$	-	-	2.8	V
Dynamic Characteristics						
Small-Signal Current Gain	h_{fe}	$V_{CE} = 3\text{V}, I_C = 5\text{A}, f = 1\text{kHz}$	300	-	-	
Current-Gain-Bandwidth Product	f_T	$V_{CE} = 3\text{V}, I_C = 5\text{A}, f = 1\text{MHz}$	4.0	-	-	MHz

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

Note 2. $f_T = |h_{fe}| \cdot f_{test}$

