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2N6666, 2N6667, 2N6668 Silicon PNP Transistors Darlington Power Amplifier TO-220 Type Package

Description:

The 2N6666, 2N6667, and 2N6668 are silicon PNP Darlington power transistors in a TO-220 type package designed for general purpose amplifier and low-speed switching applications.

Features:

- DC Current Gain: $h_{FE} = 3000$ (Typ) @ $I_C = 4A$
- Collector-Emitter Sustaining Voltage:
 - $V_{CEO(sus)} = 40V$ (Min) – 2N6666
 - $= 60V$ (Min) – 2N6667
 - $= 80V$ (Min) – 2N6668
- Low Collector-Emitter Saturation Voltage:
 - $V_{CE(sat)} = 2V$ Max @ $I_C = 3A$ – 2N6666
 - $= 2V$ Max @ $I_C = 5A$ – 2N6667, 2N6668

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	
2N6666	40V
2N6667	60V
2N6668	80V
Collector-Base Voltage, V_{CBO}	
2N6666	40V
2N6667	60V
2N6668	80V
Emitter-Base Voltage, V_{EBO}	
	5V
Collector Current, I_C	
Continuous	
2N6666	8A
2N6667, 2N6668	10A
Peak	
	15A
Base Current, I_B	
	250mA
Total Power Dissipation ($T_C = +25^\circ C$), P_D	
	65W
Derate Above $25^\circ C$	
	0.52W/ $^\circ C$
Operating Junction Temperature Range, T_J	
	-65° to +150° C
Storage Temperature Range, T_{stg}	
	-65° to +150° C
Thermal Resistance, Junction-to-Case, R_{thJC}	
	1.92° C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage 2N6666	$V_{CEO(sus)}$	$I_C = 200\text{mA}, I_B = 0, \text{Note 1}$	40	-	-	V
2N6667			60	-	-	V
2N6668			80	-	-	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = \text{Rated } V_{CEO}, I_B = 0$	-	-	1.0	mA
	I_{CEX}	$V_{CE} = \text{Rated } V_{CEO},$ $V_{EB(off)} = 1.5\text{V}$	-	-	0.3	mA
		$T_C = +125^\circ\text{C}$	-	-	3	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5\text{V}, I_C = 0$	-	-	5	mA
ON Characteristics (Note 1)						
DC Current Gain 2N6666	h_{FE}	$I_C = 3\text{A}, V_{CE} = 3\text{V}$	1000	-	20000	
		$I_C = 5\text{A}, V_{CE} = 3\text{V}$	1000	-	20000	
		$I_C = 8\text{A}, V_{CE} = 3\text{V}$	100	-	-	
		$I_C = 10\text{A}, V_{CE} = 3\text{V}$	100	-	-	
Collector-Emitter Saturation Voltage 2N6666	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 6\text{mA}$	-	-	2	V
		$I_C = 5\text{A}, I_B = 10\text{mA}$	-	-	2	V
		$I_C = 8\text{A}, I_B = 80\text{mA}$	-	-	3	V
		$I_C = 10\text{A}, I_B = 100\text{mA}$	-	-	3	V
Base-Emitter ON Voltage 2N6666	$V_{BE(on)}$	$I_C = 3\text{A}, V_{CE} = 3\text{V}$	-	-	2.8	V
		$I_C = 5\text{A}, V_{CE} = 3\text{V}$	-	-	2.8	V
		$I_C = 8\text{A}, V_{CE} = 3\text{V}$	-	-	4.5	V
		$I_C = 10\text{A}, V_{CE} = 3\text{V}$	-	-	4.5	V
Switching Characteristics						
Small-Signal Current Gain	h_{fe}	$I_C = 1\text{A}, V_{CE} = 5\text{V}, f_{test} = 1\text{MHz}$	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 $\leq 2\%$.



