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## BDV64 (PNP) & BDV65 (NPN) Silicon Complementary Transistors Darlington Power Amp, Switch TO-3PN Type Package

**Description:**

The BDV64 (PNP) and BDV65 (NPN) are silicon Darlington complementary power transistors in a TO-3PN type package designed for general purpose amplifier and low speed switching applications.

**Features:**

- Collector-Emitter Sustaining Voltage:  $V_{CEO(sus)} = 60V$  Min
- Collector-Emitter Saturation Voltage:  $V_{CE(sat)} = 2V$  Max @  $I_C = 5A$
- Monolithic Construction with Built-In Base-Emitter Shunt Resistor

**Absolute Maximum Ratings:**

Collector-Emitter Voltage, $V_{CEO}$ .....	60V
Collector-Base Voltage, $V_{CB}$ .....	60V
Emitter-Base Voltage, $V_{EB}$ .....	5V
Collector Current, $I_C$	
Continuous .....	12A
Peak .....	20A
Base Current, $I_B$ .....	500mA
Total Device Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	125W
Derate Above $+25^\circ C$ .....	1W/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+150^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+150^\circ C$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	1.0 $^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 30mA, I_B = 0$ , Note 1	60	-	-	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 30V, I_B = 0$	-	-	1.0	mA
	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$	-	-	0.4	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V$	-	-	5.0	mA

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>ON Characteristics (Note 1)</b>						
DC Current Gain	$h_{FE}$	$I_C = 1\text{A}, V_{CE} = 4\text{V}$	-	2500	-	
		$I_C = 5\text{A}, V_{CE} = 4\text{V}$	1000	-	-	
		$I_C = 10\text{A}, V_{CE} = 4\text{V}$	-	500	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 20\text{mA}$	-	-	2.0	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 5\text{A}, V_{CE} = 4\text{V}$	-	-	2.5	V
<b>Dynamic Characteristics</b>						
Small-Signal Current Gain	$h_{fe}$	$I_C = 5\text{A}, V_{CE} = 4\text{V}, f = 1\text{MHz}$	40	-	-	
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	300	pF

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

