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## TIP35A, TIP35B, TIP35C Silicon NPN Transistors Power Amp, Switch TO-247 Type Package

**Features:**

- 25A Collector Current
- Low Leakage Current:  $I_{CEO} = 1\text{mA}$  @ 30V and 60V
- Excellent DC Gain:  $h_{FE} = 40$  (Typ) @  $I_C = 15\text{A}$
- High Current Gain Bandwidth Product:  $|h_{fe}| = 3$  (Min) @  $I_C = 1\text{A}$ ,  $f = 1\text{MHz}$

**Absolute Maximum Ratings:**

Collector-Base Voltage, $V_{CB}$		
TIP35A	.....	60V
TIP35B	.....	80V
TIP35C	.....	100V
Collector-Emitter Voltage, $V_{CEO}$		
TIP35A	.....	60V
TIP35B	.....	80V
TIP35C	.....	100V
Emitter-Base Voltage, $V_{EB}$		5V
Continuous Current, $I_C$		
Continuous	.....	25A
Peak (Note 1)	.....	40A
Continuous Base Current, $I_B$		5A
Unclamped Inductive Load, $E_{SB}$		90mJ
Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$		125W
Derate Above $+25^\circ\text{C}$		$1.0\text{W}/^\circ\text{C}$
Operating Junction Temperature Range, $T_J$		$-65^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$		$-65^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$		$1.0^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient, $R_{thJA}$		$35.7^\circ\text{C}/\text{W}$

Note 1. Pulse Test: Pulse Width = 10ms, Duty Cycle  $\leq 10\%$ .

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 30\text{mA}$ , $I_B = 0$ , Note 2	60	-	-	V
TIP35A						
TIP35B						
TIP35C			100	-	-	V

Note 2. Pulse Test: Pulse Width = 300 $\mu\text{s}$ , 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
Collector Cutoff Current TIP35A	$I_{CEO}$	$V_{CE} = 30\text{V}, I_B = 0$	-	-	1.0	mA
TIP35B, TIP35C		$V_{CE} = 60\text{V}, I_B = 0$	-	-	1.0	mA
Collector Cutoff Current	$I_{CES}$	$V_{CE} = \text{Rated } V_{CEO}, V_{EB} = 0$	-	-	0.7	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 5\text{V}, I_C = 0$	-	-	1.0	mA
<b>ON Characteristics (Note 2)</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 4\text{V}, I_C = 1.5\text{A}$	25	-	-	
		$V_{CE} = 4\text{V}, I_C = 15\text{A}$	15	-	75	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 15\text{A}, I_B = 1.5\text{A}$	-	-	1.8	V
		$I_C = 25\text{A}, I_B = 5\text{A}$	-	-	4.0	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$V_{CE} = 4\text{V}, I_C = 15\text{A}$	-	-	2.0	V
		$V_{CE} = 4\text{V}, I_C = 25\text{A}$	-	-	4.0	V
<b>Dynamic Characteristics</b>						
Small-Signal Current Gain	$h_{fe}$	$V_{CE} = 10\text{V}, I_C = 1.0\text{A}, f = 1\text{kHz}$	25	-	-	
Current-Gain Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 1.0\text{A}, f = 1\text{MHz}$	3	-	-	MHz

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

