

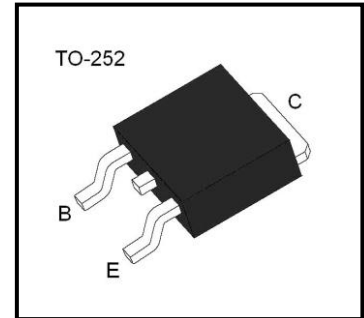
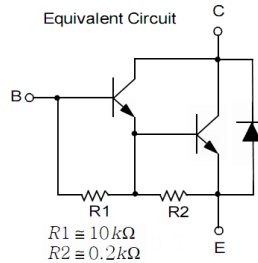
## TO-252 Darlington Transistors

### Applications

- Medium Power Linear Switching

### Features

- High DC Current Gain
- Built-in a Damper Diode at E-C
- Electrically Similar to Popular TIP112
- Complementary to MJD127



### Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	100	V
Collector-Emitter Voltage	$V_{CEO}$	100	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current(DC)	$I_C$	4	A
Collector Dissipation, Ta =25 °C	$P_C$	1.25	W
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55~150	°C

### Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 30mA, I_B = 0$	100			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 100V, I_E = 0$			0.2	mA
Collector cut-off current	$I_{CEO}$	$V_{CE} = 50V, I_E = 0$			0.5	mA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$			0.2	mA
DC current gain*	$h_{FE}$	$V_{CE} = 3V, I_C = 0.5A$ $V_{CE} = 3V, I_C = 3A$ $V_{CE} = 3V, I_C = 5A$	500 1000 200			
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = 3A, I_B = 12mA$ $I_C = 5A, I_B = 20mA$			2 4	V
Base-emitter on voltage*	$V_{BE(on)}$	$V_{CE} = 3V, I_C = 3A$			2.5	V
Current gain bandwidth product	$f_T$	$V_{CE} = 10V, I_C = 0.75A$	25			MHz
Output capacitance	$C_{ob}$	$V_{CE} = 10V, f = 1MHz$			100	pF

\* Pulse Test :  $PW \leq 300\mu s$ , Duty cycle  $\leq 2\%$

Typical characteristic

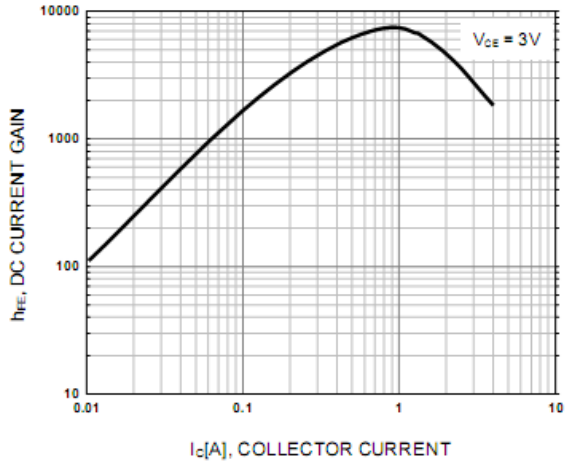


Figure 1. DC current Gain

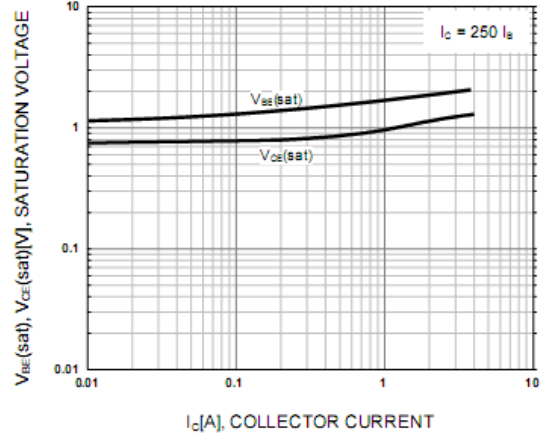


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

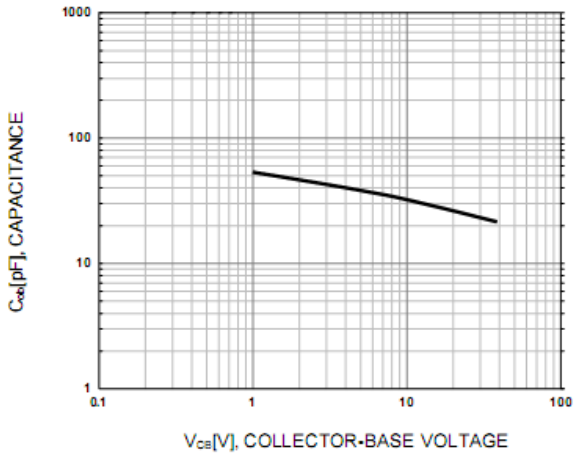


Figure 3. Collector Output Capacitance

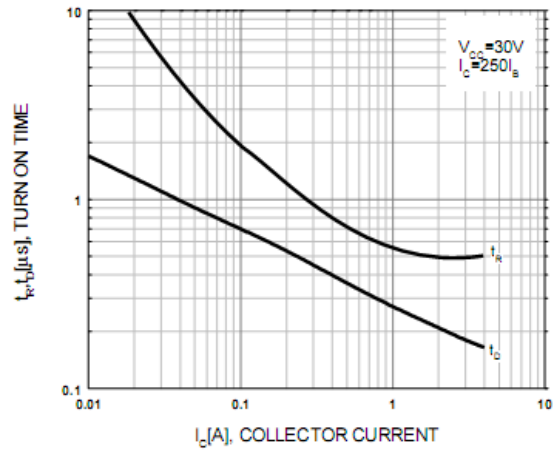


Figure 4. Turn On Time

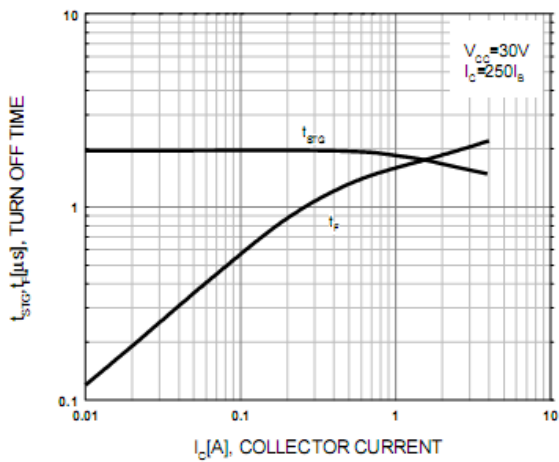


Figure 5. Turn Off Time

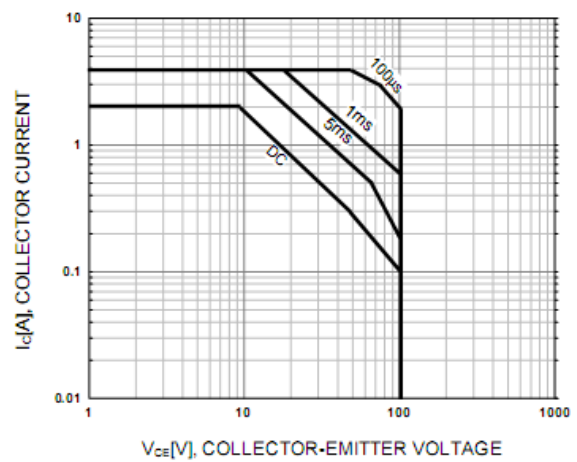


Figure 6. Safe Operating Area