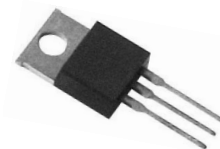
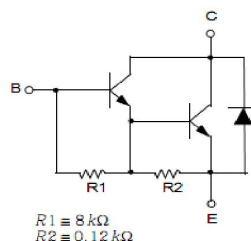
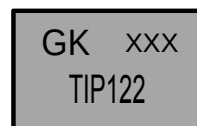


FEATURES

NPN Epitaxial Darlington Transistor

Medium Power Linear Switching Applications



TO-220AB

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Rating ($T_a=25^\circ\text{C}$)

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	5	A
Collector Current (Pulse)		I_{CP}	8	A
Collector Dissipation	$T_a = 25^\circ\text{C}$	P_C	2	W
	$T_c = 25^\circ\text{C}$		65	
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature		T_{stg}	-65~150	$^\circ\text{C}$

Electrical Characteristics (Tj=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0$	100			V
Collector-base cut-off current	I_{CBO}	$V_{CB} = 100V, I_E = 0$			0.2	mA
Collector- emitter cut-off current	I_{CEO}	$V_{CE} = 50V, I_E = 0$			0.5	mA
Emitter-base cut-off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			2	mA
DC current gain*	h_{FE}	$V_{CE} = 3V, I_C = 0.5A$ $V_{CE} = 3V, I_C = 3A$	1000 1000			
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = 3A, I_B = 12mA$ $I_C = 5A, I_B = 20mA$			2.0 4.0	V
Base-Emitter on Voltage *	$V_{BE(on)}$	$V_{CE} = 3V, I_C = 3A$			2.5	V
Output Capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 0.1MHz$			200	pF

* Pulse Test : PW ≤ 300μs, Duty cycle ≤ 2%

RATING AND CHARACTERISTIC CURVES

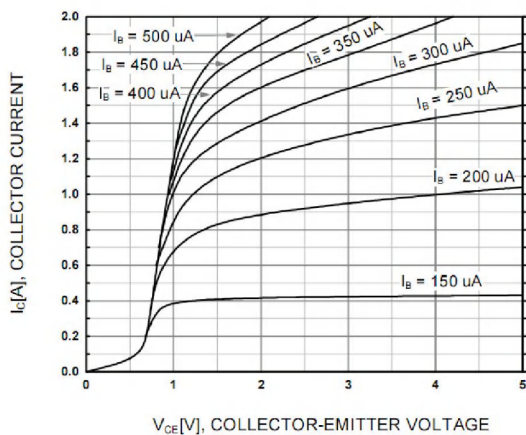


Figure 1. Static Characteristic

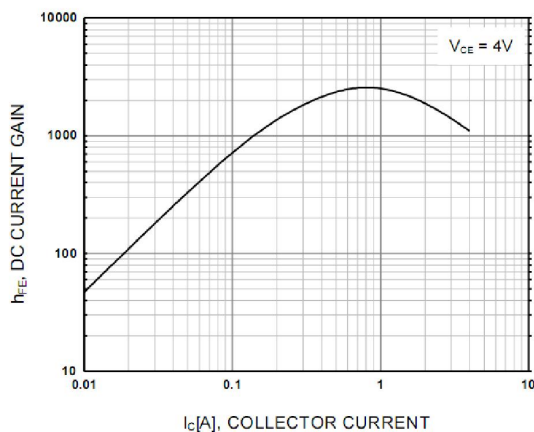
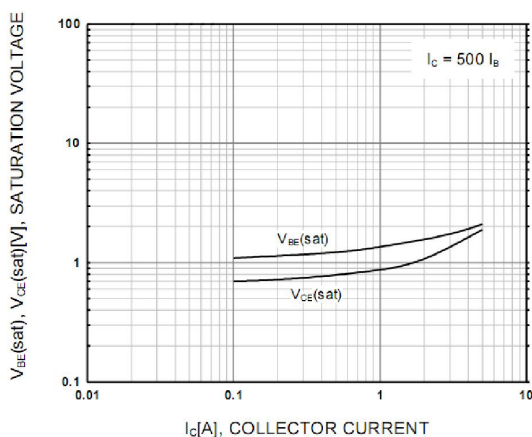


Figure 2. DC current Gain



**Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage**

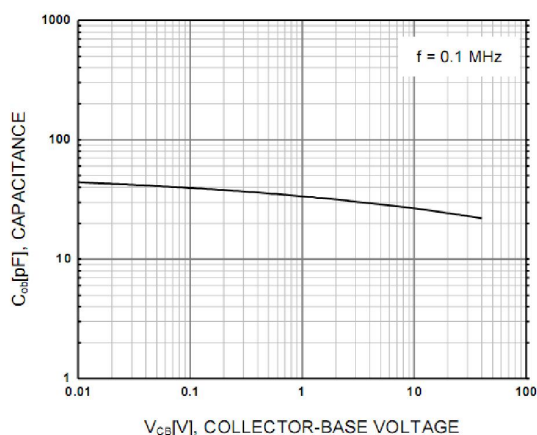


Figure 4. Collector Output Capacitance

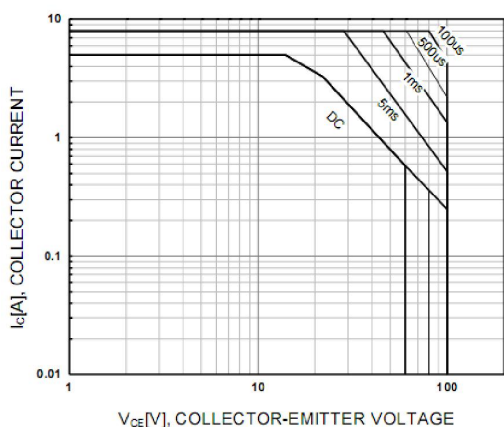


Figure 5. Safe Operating Area

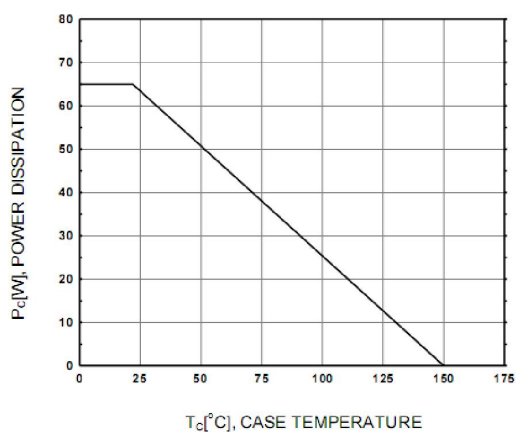
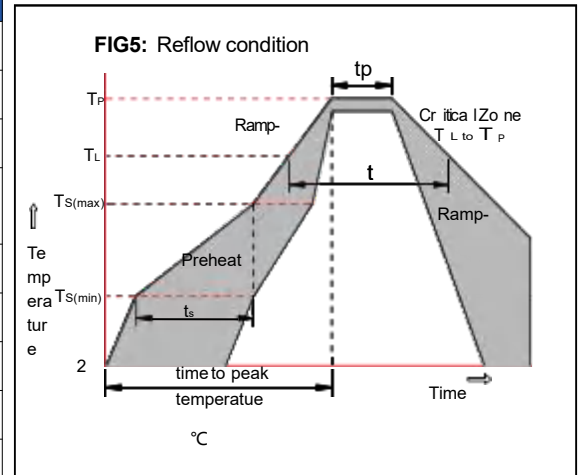


Figure 6. Power Derating

Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max ($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout

TO-220AB

