

**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-60			V	$I_C = -10\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-60			V	$I_C = -10mA, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E = -10\mu A, I_C = 0$
Collector-Base Cutoff Current	$I_{CBO}$			-10	nA	$V_{CB} = -50V, I_E = 0$
Collector-Emitter Cutoff Current	$I_{CEO}$			-50	nA	$V_{CE} = -35V, I_B = 0$
Emitter-Base Cutoff Current	$I_{EBO}$			-10	nA	$V_{EB} = -3V, I_C = 0$
DC Current Gain (Note2)	$h_{FE(1)}$	100				$V_{CE} = -10V, I_C = -1mA$
	$h_{FE(2)}$	100		300		$V_{CE} = -10V, I_C = -150mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-1.6	V	$I_C = -500mA, I_B = -50mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-2.6	V	$I_C = -500mA, I_B = -50mA$
Transition Frequency	$f_T$	200			MHz	$V_{CE} = -20V, I_C = -50mA, f = 100MHz$
Output Capacitance	$C_{cbo}$			8	pF	$V_{CB} = -10V, I_E = 0, f = 1MHz,$
Delay Time	$t_d$			10	ns	$V_{CC} = -30V, I_C = -150mA$
Rise Time	$t_r$			25	ns	$V_{BE(off)} = -0.5V, I_{B1} = -15mA$
Storage Time	$t_s$			80	ns	$V_{CC} = -30V, I_C = -150mA$
Fall Time	$t_f$			30	ns	$I_{B1} = I_{B2} = -15mA$

Note: 2.Pluse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

## Curve Characteristics

Fig. 1 - Static Characteristics

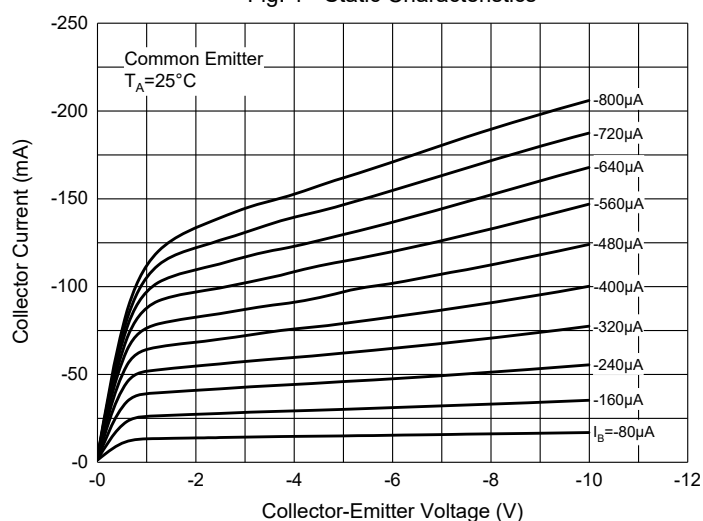


Fig. 2 - DC Current Gain Characteristics

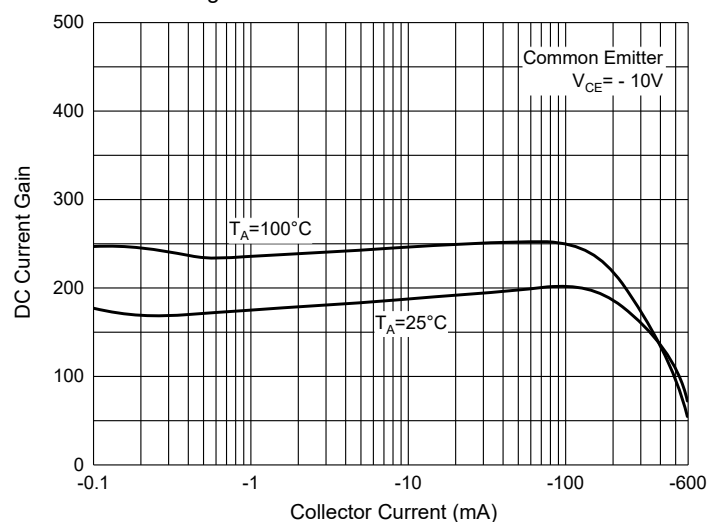


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

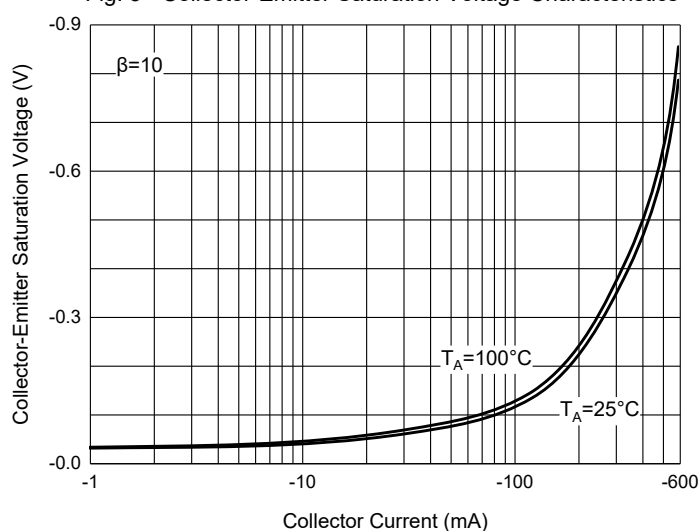


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

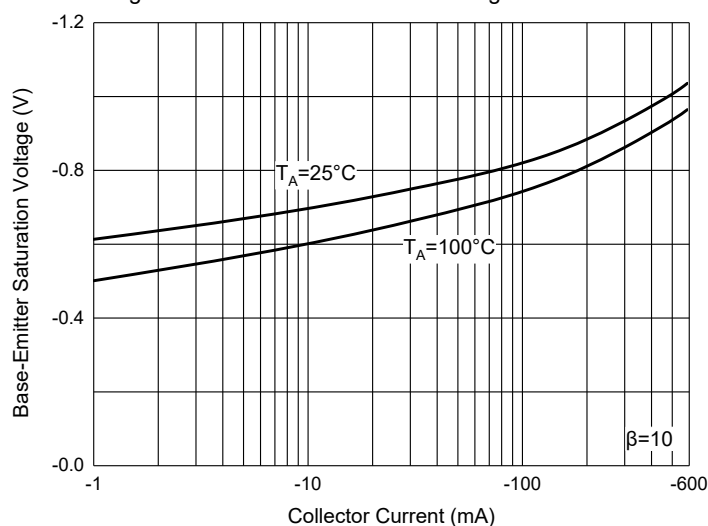


Fig. 5 - Base-Emitter Voltage Characteristics

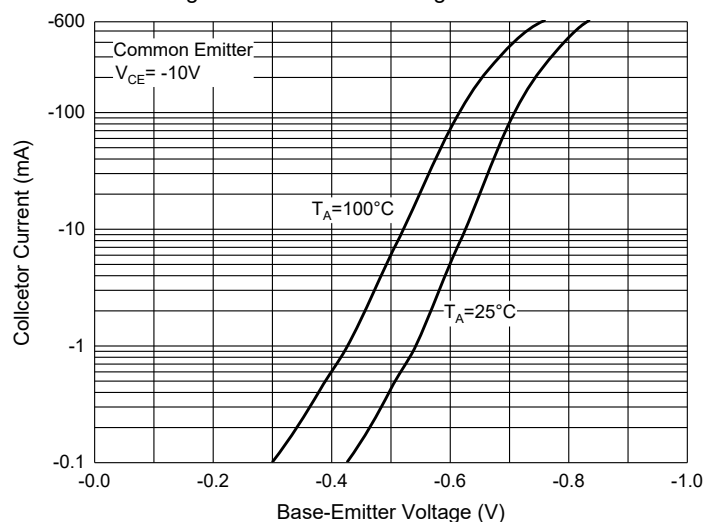
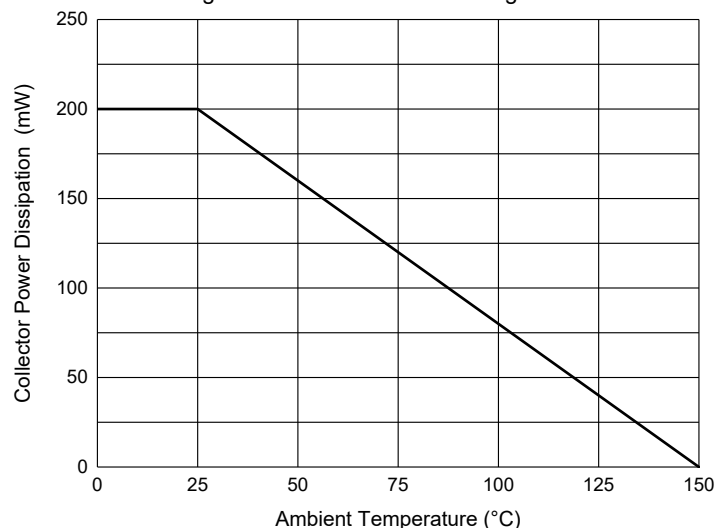


Fig. 6 - Collector Power Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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