

Electrical Characteristics @ $T_A=25^\circ\text{C}$ Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40			V	$I_C=-100\mu\text{A}$, $I_E=0$
Collector-Emitter Breakdown Voltage*	$V_{(BR)CEO}$	-40			V	$I_C=-1\text{mA}$, $I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E=-100\mu\text{A}$, $I_C=0$
Base Cutoff Current	I_{BL}			-0.1	μA	$V_{CE}=-30\text{V}$, $V_{BE}=-3\text{V}$
Collector Cutoff Current	I_{CEX}			-0.1	μA	$V_{CE}=-30\text{V}$, $V_{BE}=-3\text{V}$
DC Current Gain*	$h_{FE(1)}$	30				$V_{CE}=-1\text{V}$, $I_C=-0.1\text{mA}$
	$h_{FE(2)}$	60				$V_{CE}=-1\text{V}$, $I_C=-1\text{mA}$
	$h_{FE(3)}$	100				$V_{CE}=-1\text{V}$, $I_C=-10\text{mA}$
	$h_{FE(4)}$	100		300		$V_{CE}=-2\text{V}$, $I_C=-150\text{mA}$
	$h_{FE(5)}$	20				$V_{CE}=-2\text{V}$, $I_C=-500\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.4	V	$I_C=-150\text{mA}$, $I_B=-15\text{mA}$
				-0.75	V	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.75	-0.95	V	$I_C=-150\text{mA}$, $I_B=-15\text{mA}$
				-1.3	V	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$
Transition Frequency	f_T	200			MHz	$V_{CE}=-10\text{V}$, $I_C=-20\text{mA}$, $f=100\text{MHz}$
Delay Time	t_d			15	ns	$V_{CC}=-30\text{V}$, $V_{BE}=-0.5\text{V}$, $I_C=-150\text{mA}$, $I_{B1}=-15\text{mA}$
Rise Time	t_r			20	ns	
Storage Time	t_s			225	ns	$V_{CC}=-30\text{V}$, $I_C=-150\text{mA}$, $I_{B1}=I_{B2}=-15\text{mA}$
Fall Time	t_f			30	ns	
Collector-Base Capacitance	C_{cb}			8.5	pF	$V_{CB}=-10\text{V}$, $I_E=0$, $f=1\text{MHz}$
Emitter-Base Capacitance	C_{eb}			30	pF	$V_{EB}=-0.5\text{V}$, $I_C=0$, $f=1\text{MHz}$

*.Pulse test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

Curve Characteristics

Fig. 1 - Static Characteristics

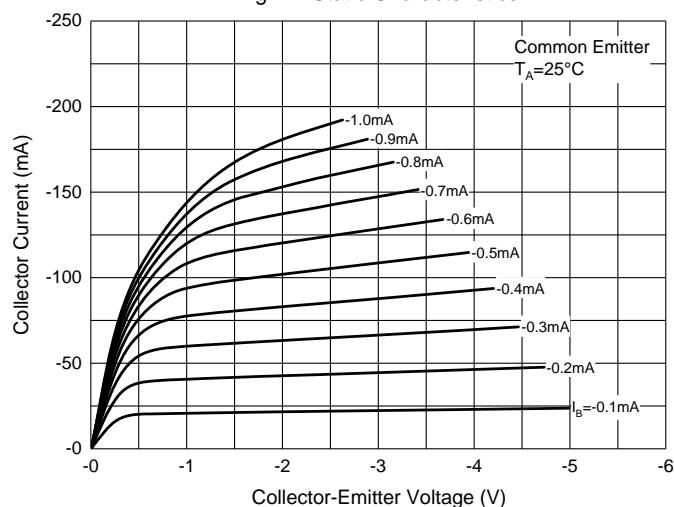


Fig. 2 - DC Current Gain Characteristics

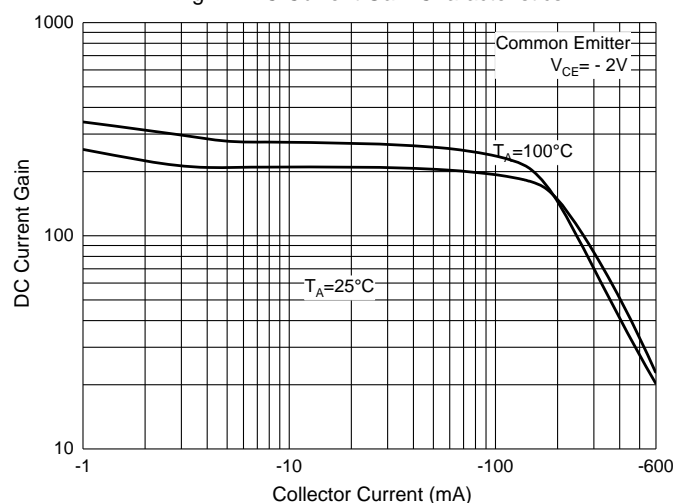


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

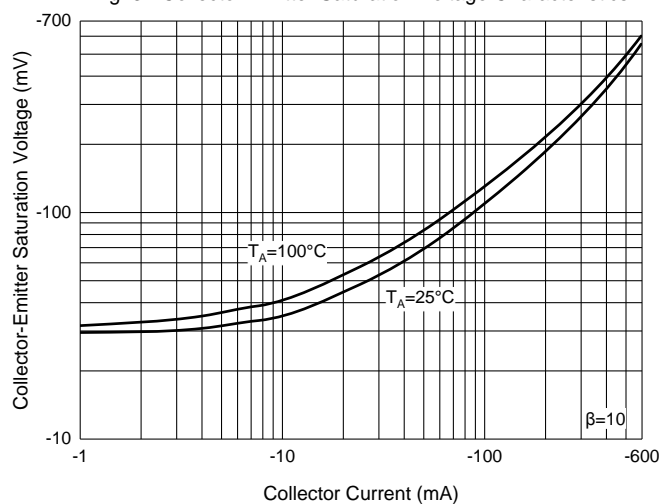


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

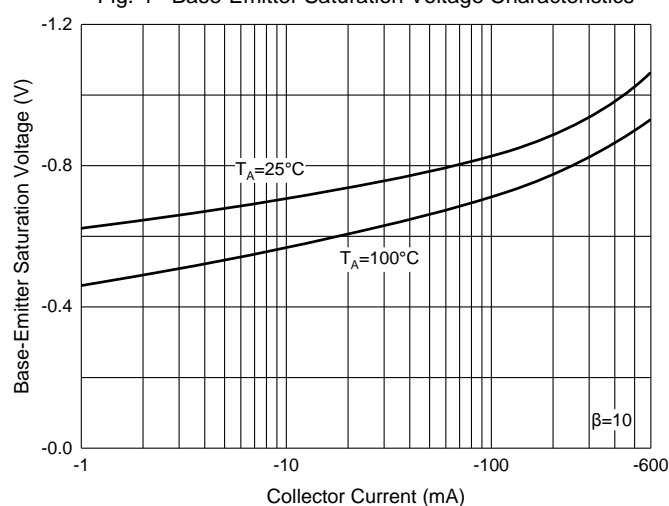


Fig. 5 - Base-Emitter Voltage Characteristics

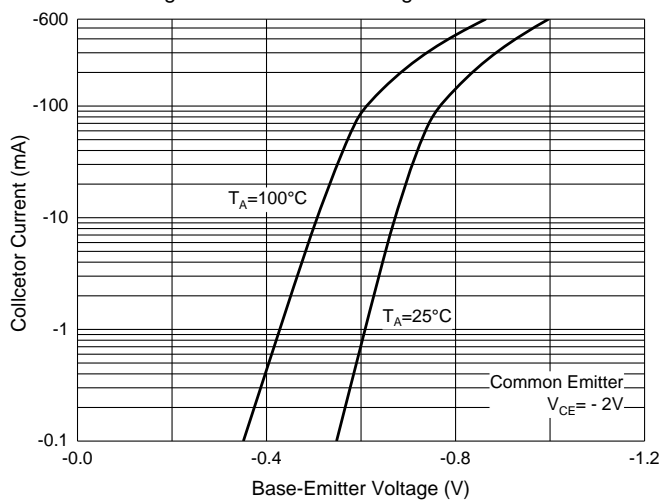
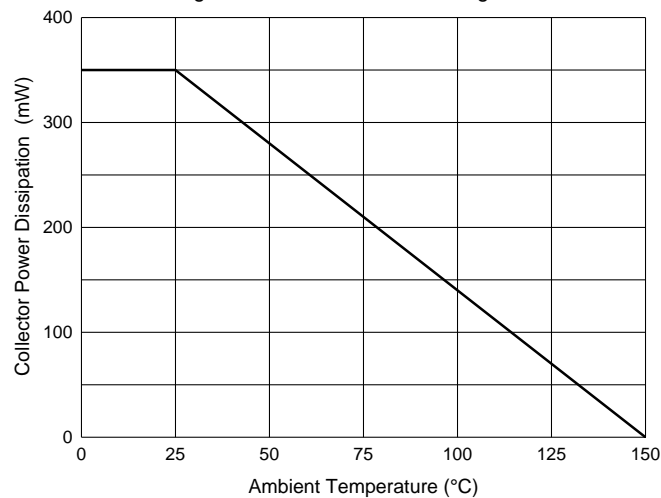


Fig. 6 - Collector Power Derating Curve



Ordering Information

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

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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