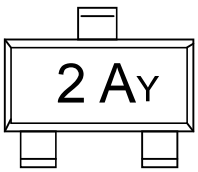
Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40			V	I_C=-10μA, I_E=0
Collector-Emitter Breakdown Voltage*	$V_{(BR)CEO}$	-40			V	I_C=-1mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	I_E=-10μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			-100	nA	V_{CB}=-40V, I_E=0
Collector Cutoff Current	I_{CEX}			-50	nA	V_{CE}=-30V, V_{BE}=-3V
Emitter-Base Cutoff Current	I_{EBO}			-100	nA	V_{EB}=-5V, I_C=0
DC Current Gain*	$h_{FE(1)}$	100		300		V_{CE}=-1V, I_C=-10mA
	$h_{FE(2)}$	60				V_{CE}=-1V, I_C=-50mA
	$h_{FE(3)}$	30				V_{CE}=-1V, I_C=-100mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.25	V	I_C=-10mA, I_B=-1mA
				-0.4	V	I_C=-50mA, I_B=-5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-0.65		-0.85	V	I_C=-10mA, I_B=-1mA
				-0.95	V	I_C=-50mA, I_B=-5mA
Transition Frequency	f_T	250			MHz	V_{CE}=-20V, I_C=-10mA, f=100MHz
Output Capacitance	C_{cbo}			4.5	pF	V_{CB}=-5V, I_E=0, f=1MHz
Input Capacitance	C_{ibo}			10	pF	V_{BE}=-0.5V, I_C=0, f=1MHz
Noise Figure	NF			4	dB	V_{CE}=-5V, I_C=100μA, R_S=1K, f=1KHz
Delay Time	t_d			35	ns	V_{CC}=-3V, I_C=-10mA
Rise Time	t_r			35	ns	V_{BE}=-0.5V, I_{B1}=I_{B2}=-1mA
Storage Time	t_s			225	ns	V_{CC}=-3V, I_C=-10mA
Fall Time	t_f			75	ns	I_{B1}=I_{B2}=-1mA

*Pulse Width ≤ 300μs, Duty Cycle≤2.0%

Marking Information



2A = Product Type Marking Code
Y=Date Code Marking

Date code Key（2 years a cycle）

Year	2011											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	J	O	L	C	K	B	P	D	M	E	G	F

Year	2012											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	W	N	Y	T	R	H	A	I	U	X	Z	S

Curve Characteristics

Fig. 1 - Static Characteristics

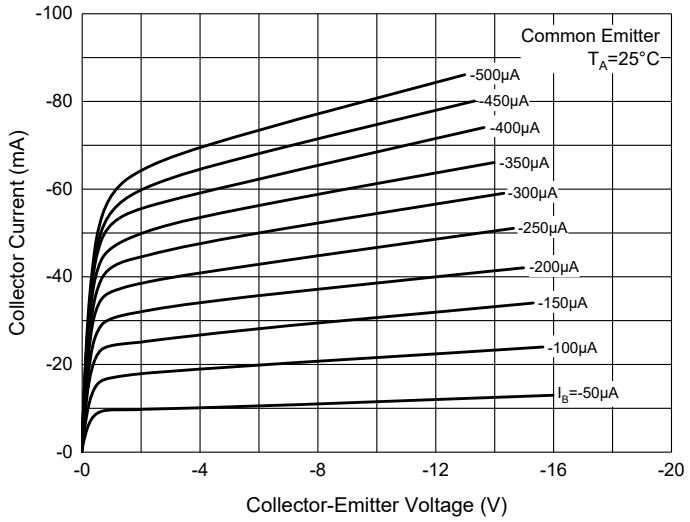


Fig. 2 - DC Current Gain Characteristics

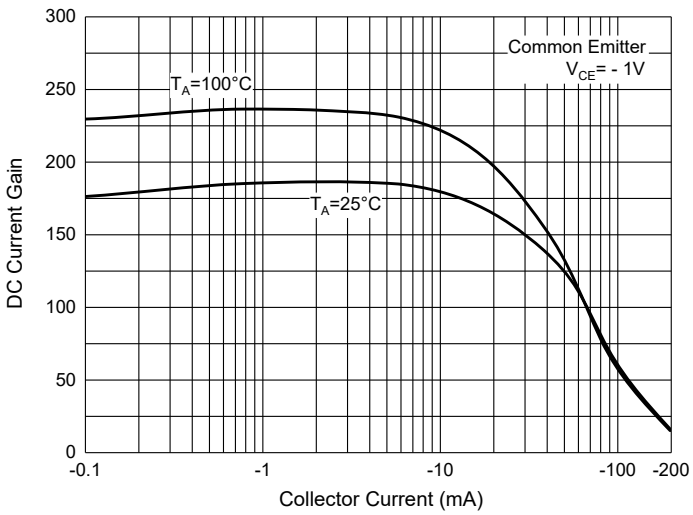


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

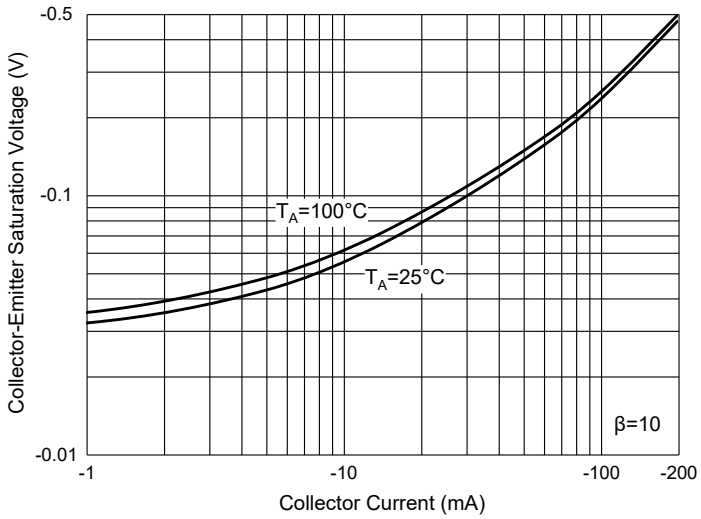


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

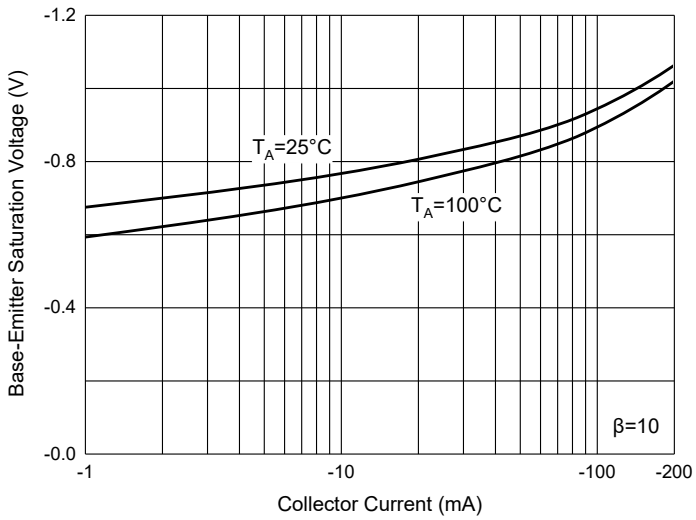


Fig. 5 - Base-Emitter Voltage Characteristics

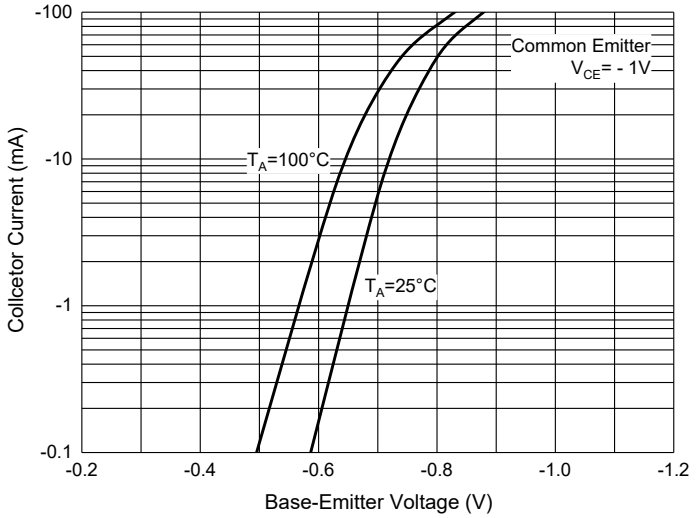
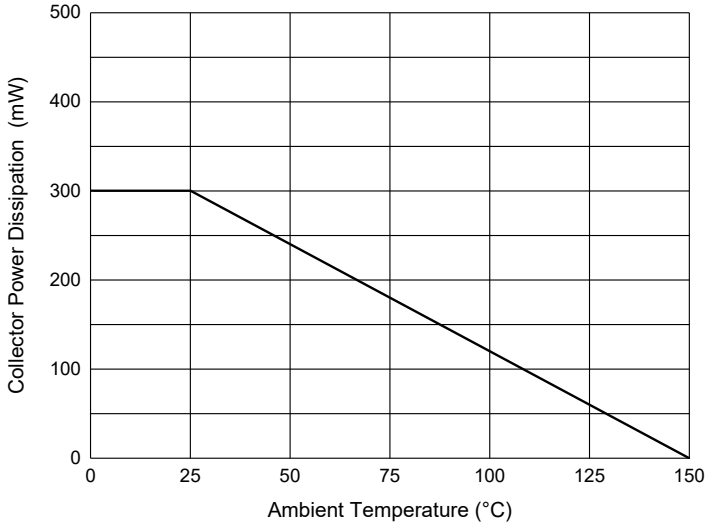


Fig. 6 - Collector Power Derating Curve



Ordering Information

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

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