Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* (I_C=-10mAdc, I_B=0)	-60		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=-10μAdc, I_E=0)	-60		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_E=-10μAdc, I_C=0)	-5.0		Vdc
I_{BL}	Base Cutoff Current (V_{CE}=-30Vdc, V_{BE}=-0.5Vdc)		-50	nAdc
I_{CEX}	Collector Cutoff Current (V_{CE}=-30Vdc, V_{BE}=-0.5Vdc)		-50	nAdc
I_{CBO}	Collector Cutoff Current (V_{CB}=-50Vdc, I_E=0) (V_{CB}=-50Vdc, I_E=0, T_A=150°C)		-0.02 -10.0	μAdc
ON CHARACTERISTICS				
h_{FE}	DC Current Gain* (I_C=-0.1mAdc, V_{CE}=-10Vdc) (I_C=-1.0mAdc, V_{CE}=-10Vdc) (I_C=-10mAdc, V_{CE}=-10Vdc) (I_C=-150mAdc, V_{CE}=-10Vdc) (I_C=-500mAdc, V_{CE}=-10Vdc)	 75 100 100 100 50	 300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C=-150mAdc, I_B=-15mAdc) (I_C=-500mAdc, I_B=-50mAdc)		 -0.4 -1.6	 Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C=-150mAdc, I_B=-15mAdc) (I_C=-500mAdc, I_B=-50mAdc)		 -1.3 -2.6	 Vdc
SMALL-SIGNAL CHARACTERISTICS				
f_T	Current Gain-Bandwidth Product (I_C=-50mAdc, V_{CE}=-20Vdc, f=100MHz)	200		MHz
C_{cbo}	Output Capacitance (V_{CB}=-10Vdc, I_E=0, f=1.0MHz)		8.0	pF
C_{ibo}	Input Capacitance (V_{EB}=-2.0Vdc, I_C=0, f=1.0MHz)		30.0	pF
SWITCHING CHARACTERISTICS				
t_{on}	Turn-on Time	(V_{CC}=-30Vdc, I_C=-150mAdc, I_{B1}=-15mAdc)	45	ns
t_d	Delay Time		10	ns
t_r	Rise Time		40	ns
t_{off}	Turn-off Time	(V_{CC}= -6.0Vdc, I_C=-150mAdc,I_{B1}= I_{B2}= -15mAdc)	100	ns
t_s	Storage Time		80	ns
t_f	Fall Time		30	ns

*Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

Typical Characteristics

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Fig. 1 - Static Characteristics

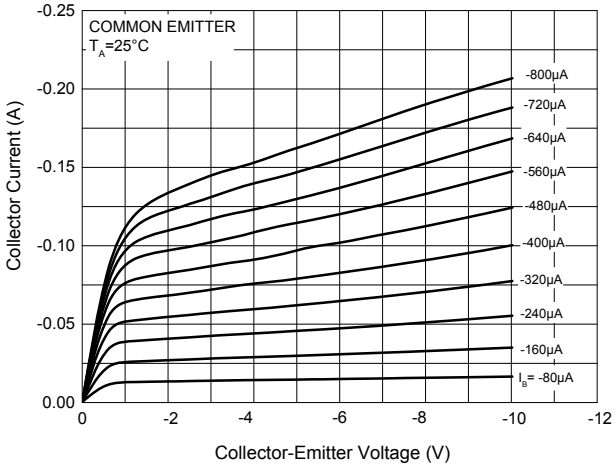


Fig. 2 - DC Current Gain Characteristics

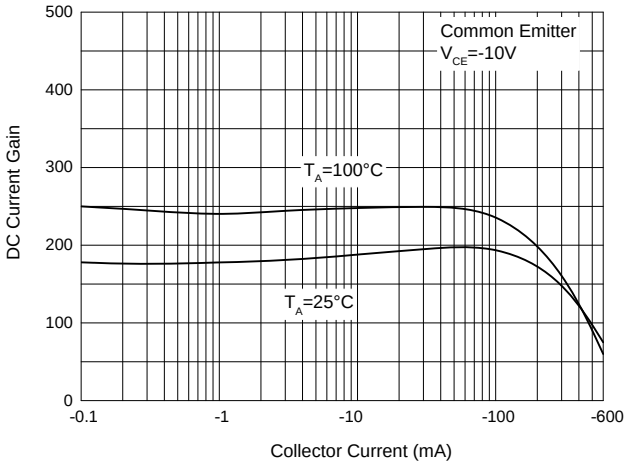


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

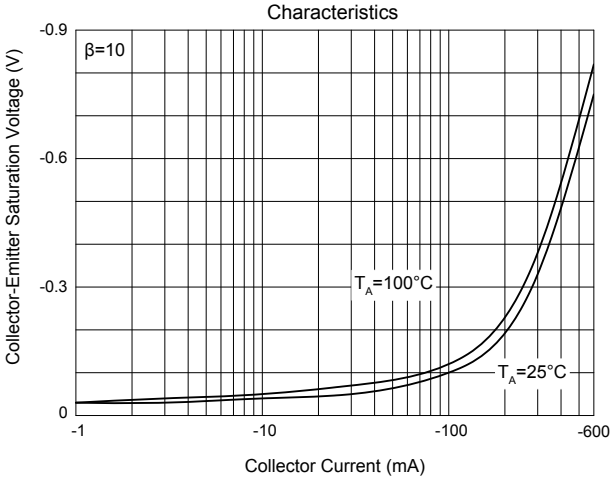


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

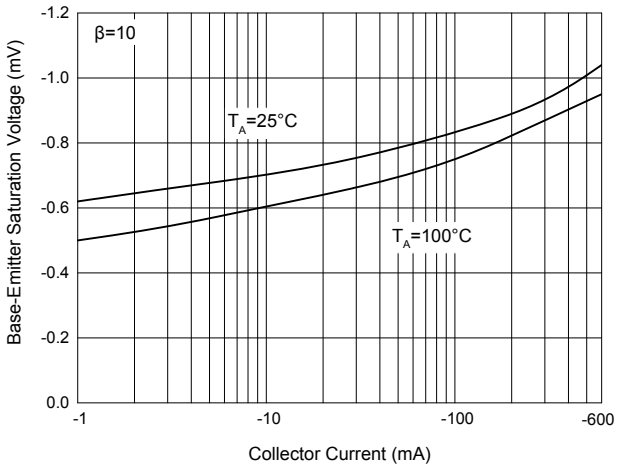


Fig. 5 - Base-Emitter Voltage Characteristics

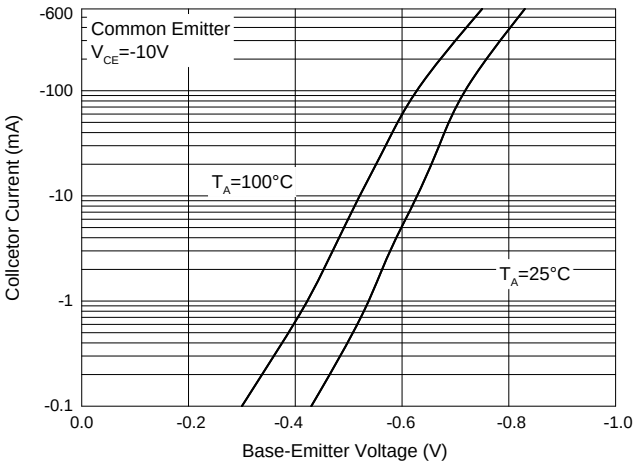
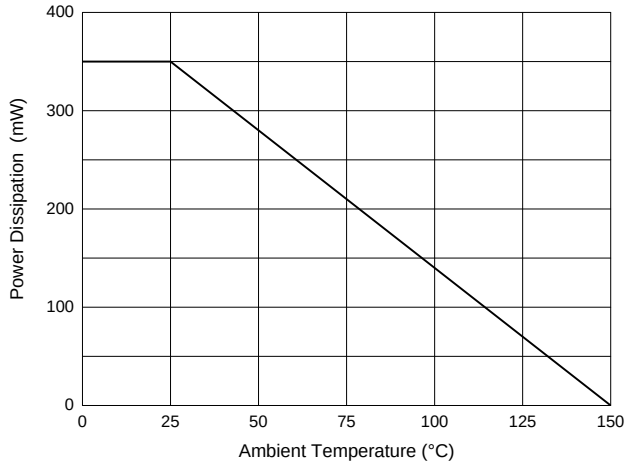


Fig. 6 - Power Derating Curve



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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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