



NPN Transistor with Zener Diode

Features

Epoxy meets UL-94 V-0 flammability rating

Surface mount package ideally Suited for Automatic Insertion

NPN+Zener

Mechanical Data

Package: SOT-23-6L

Terminals:



SMBT445V6

NPN Transistor Pin2 3 4 Maximum Ratings (Ta=25 Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Collector-Base Voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	60
Collector-Emitter Voltage	V_{CEO}	V	$I_C=1mA, I_B=0$	40
Emitter-Base Voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	6
Collector Current -Continuous	I_C	mA		600

NPN Transistor Pin2 3 4 Electrical Characteristics (Ta=25 unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	60		
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C=1mA, I_B=0$	40		
Emitter-base breakdown voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	6		
Base cut-off Current	I_{BL}	nA	$V_{CE}=35V, V_{EB(off)}=0.4V$			100
Collector cut-off current	I_{CEX}	nA	$V_{CE}=35V, V_{EB(off)}=0.4V$			100
DC current gain	h_{FE}		$V_{CE}=1V, I_C=0.1mA$	20		
	h_{FE}		$V_{CE}=1V, I_C=1mA$	40		
	h_{FE}		$V_{CE}=1V, I_C=10mA$	80		
	h_{FE}		$V_{CE}=1V, I_C=150mA$	100		300
	h_{FE}		$V_{CE}=1V, I_C=500mA$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=150mA, I_B=15mA$			0.4
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=500mA, I_B=50mA$			0.75
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=150mA, I_B=15mA$			0.95
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=500mA, I_B=50mA$			1.2
Transition frequency	f_T	MHz	$V_{CE}=10V, I_C=20mA, f=100MHz$	250		
Delay time	t_d	ns	$V_{CC}=30V, I_C=150mA, I_{B1}=15mA, V_{BE(off)}=2V$			15
Rise time	t_r	ns				20
Storage time	t_s	ns	$V_{CC}=30V, I_C=150mA, I_{B1}=-I_{B2}=15mA$			225



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Zener Diode Pin1 6 Maximum Ratings (Ta=25 Unless otherwise specified)

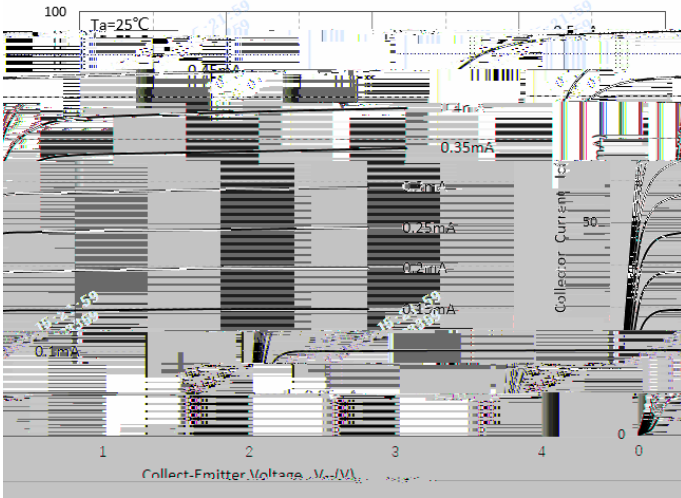
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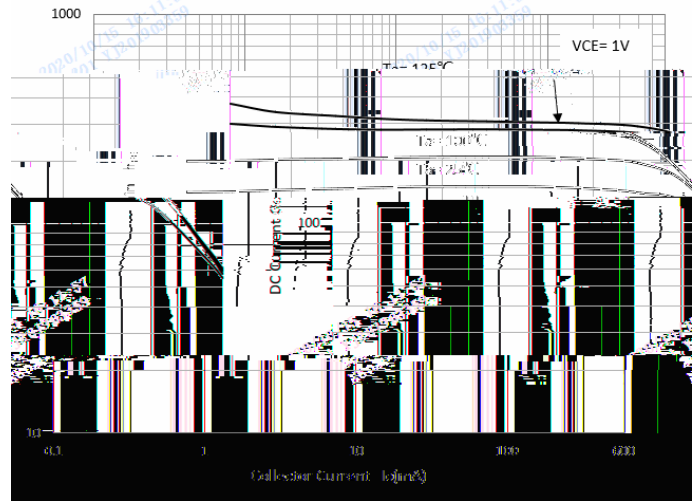
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NPN Transistor Pin2 3 4 Characteristics (Typical)

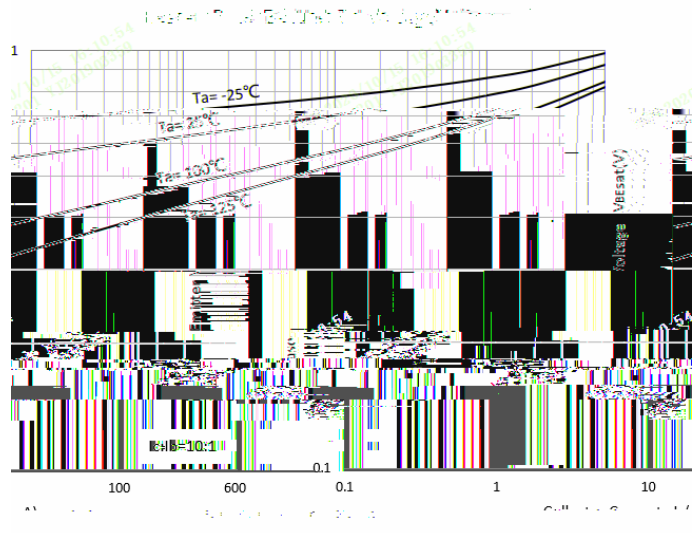
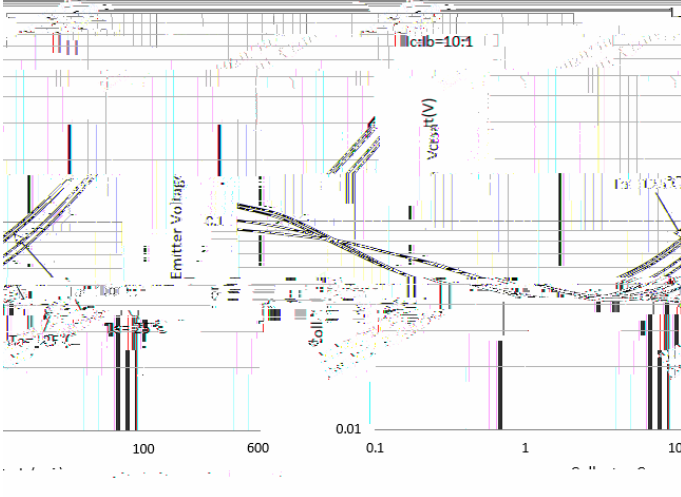
Static Characteristic



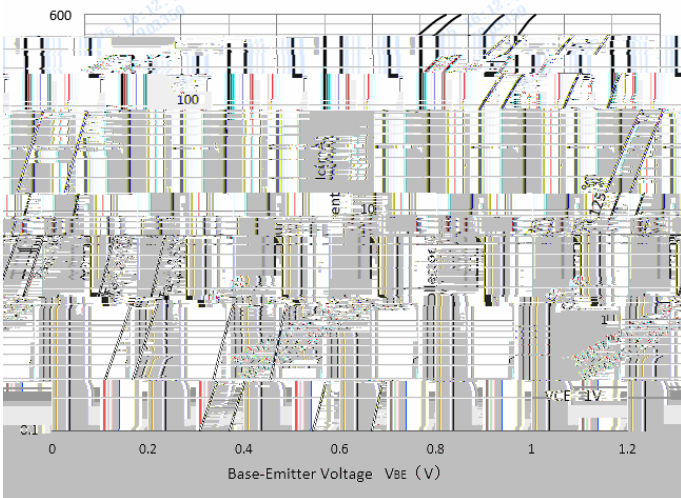
DC Current Gain



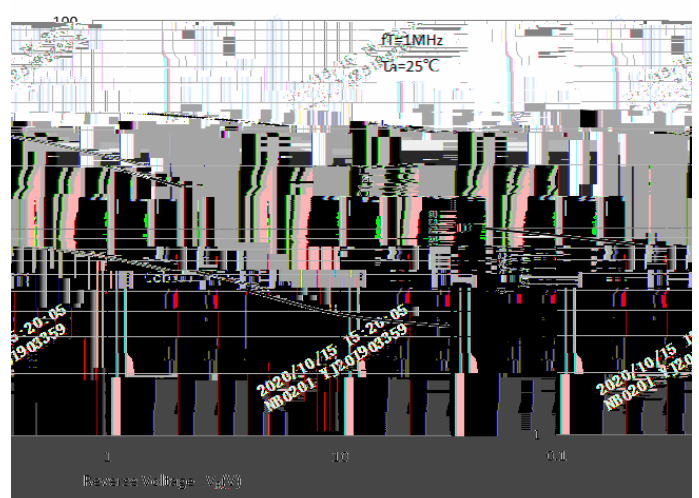
Collector-Emitter Saturation Voltage



Base-Emitter On Voltage



$C_{ob}/C_{ib}-V_{CB}/V_{EB}$







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Disclaimer

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with

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