

GE13003

NPN SILICON POWER TRANSISTOR

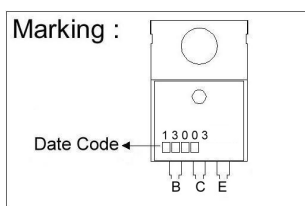
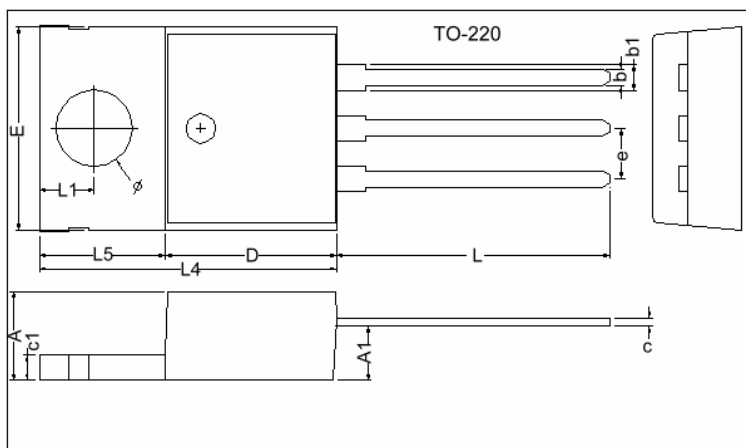
Description

The GE13003 is designed for high voltage, high speed power switching inductive circuit where fall time is critical. It is particularly suited for 115 and 220v Switch-mode.

Features

- Inductive Switching Matrix 0.5~1.5Amp, 25 and 100°C...tc @ 1A, 100°C is 290ns(Typ)
- 700V Blocking Capability
- SOA and Switching Application Information

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c1	1.25	1.45
b	0.76	1.00	b1	1.17	1.47
c	0.36	0.50	L	13.25	14.25
D	8.60	9.00	e	2.54 REF.	
E	9.80	10.4	L1	2.60	2.89
L4	14.7	15.3	Ø	3.71	3.96
L5	6.20	6.60	A1	2.60	2.80

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Ratings	Unit
Junction Temperature	Tj	+150	°C
Storage Temperature	Tstg	-55 ~ +150	°C
Collector to Emitter Voltage	VCEO(sus)	400	V
Collector to Emitter Voltage	VCEO	700	V
Emitter to Base Voltage	VEBO	9	V
Collector Current -Continuous	IC	1.5	A
-Peak(1)	ICM	3.0	A
Base Current -Continuous	IB	0.75	A
-Peak(1)	IBM	1.5	A
Emitter Current -Continuous	IE	2.25	A
-Peak(1)	IEM	4.5	A
Total Power Dissipation at Ta=25°C	PD	1.4	W
Derate above 25°C		11.2	mW/°C
Total Power Dissipation at Tc=25°C	PD	40	W
Derate above 25°C		320	mW/°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-ambient	RθJA	89	°C/W
Thermal Resistance, Junction-case	RθJC	3.12	°C/W
Maximum Lead Temperature for Soldering Purposes:1/8" from Case for 5 Seconds	TL	275	°C

(1)Pulse Test: Pulse Width=5ms, Duty Cycle ≤ 10%

Electrical Characteristics(Tc = 25°C Unless otherwise specified)

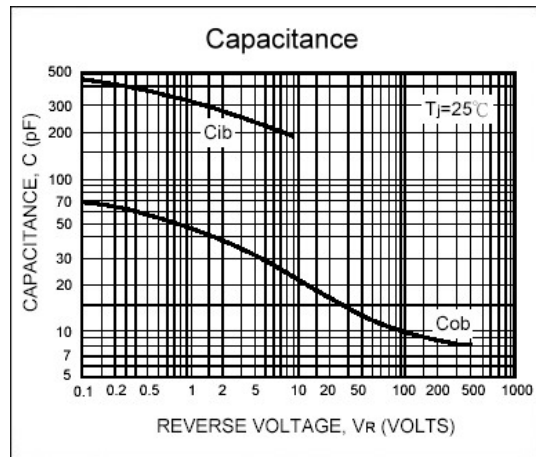
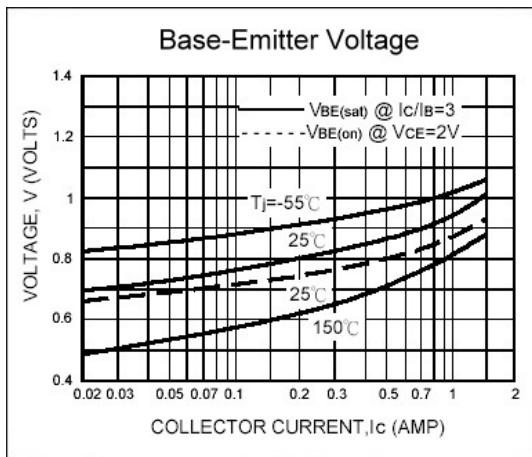
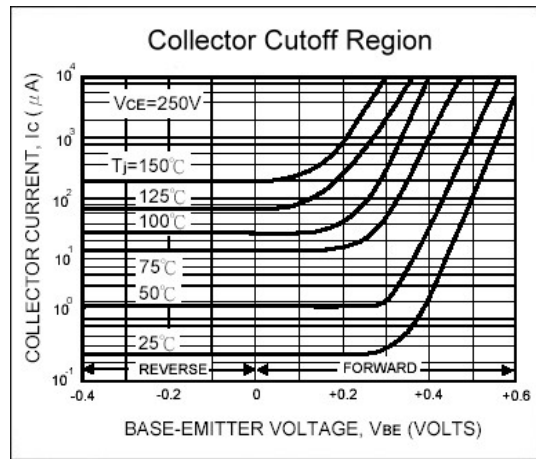
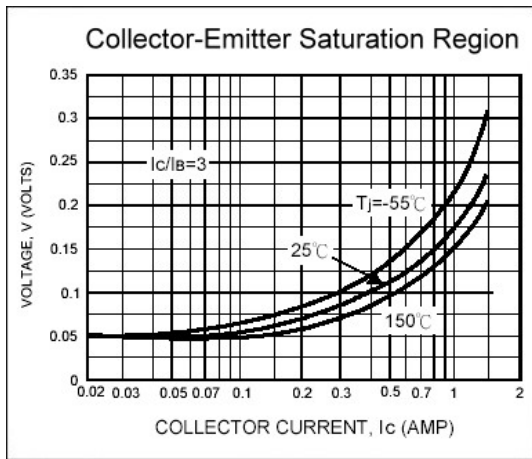
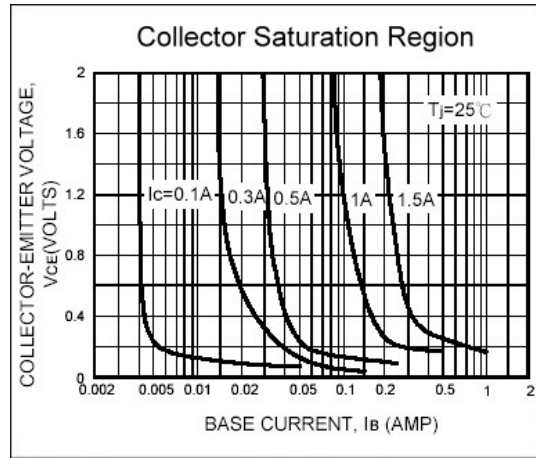
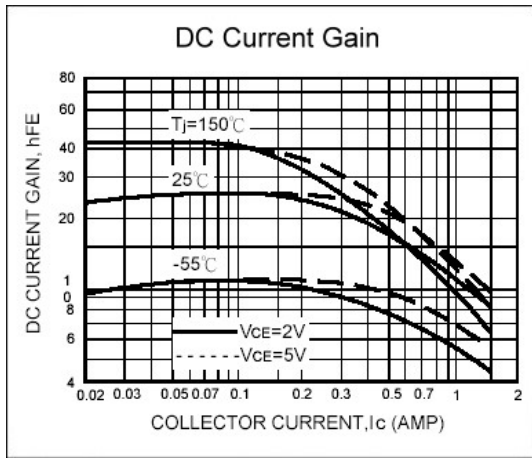
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
*Off Characteristics(1)						
Collector-Emitter Sustaining Voltage	VCE(sus)	400	-	-	V	IC=10mA, IB=0
Collector Cutoff Current	ICEV	-	-	1 5	mA	VCEV=Rated Value, VBE(off)=1.5V VCEV=Rated Value, VBE(off)=1.5V, TC=100°C
Emitter Cutoff Current	IEBO	-	-	1	mA	VEB=9V
*On Characteristics(1)						
Collector-Emitter Saturation Voltage	VCE(sat)1	-	-	0.5	V	IC=500mA, IB=100mA
	VCE(sat)2	-	-	1.0		IC=1A, IB=250mA
	VCE(sat)3	-	-	3.0		IC=1.5A, IB=500mA
	VCE(sat)4	-	-	1.0		IC=1A, IB=250mA, TC=100°C
Base-Emitter Saturation Voltage	VBE(sat)1	-	-	1.0	V	IC=500mA, IB=100mA
	VBE(sat)2	-	-	1.2		IC=1A, IB=250mA
	VBE(sat)3	-	-	1.1		IC=1A, IB=250mA, TC=100°C
DC Current Gain	HFE1	8	-	40		VCE=2V, IC=500mA
	HFE2	5	-	25		VCE=2V, IC=1A
Current-Gain Bandwidth Product	fT	4	10	-	MHz	VCE=10V, IC=100mA, f=1MHz
Output Capacitance	Cob	-	21	-	pF	VCB=10V, IE=0, f=0.1MHz
*Switching Characteristics						
Delay Time	Td	-	0.05	0.1	μs	VCC=125V, IC=1A, IB1=IB2=0.2A, Tp=25μs, Duty Cycle ≤ 1%
Rise Time	Tr	-	0.5	1		
Storage Time	Ts	-	2	4		
Fall Time	Tf	-	0.4	0.7		
Storage Time	Tsv	-	1.7	4	μs	IC=1A, Vclamp=300V, IB1=0.2A, VBE(off)=5Vdc, TC=100°C
Crossover Time	Tc	-	0.29	0.75		
Fall Time	Tfi	-	0.15	-		

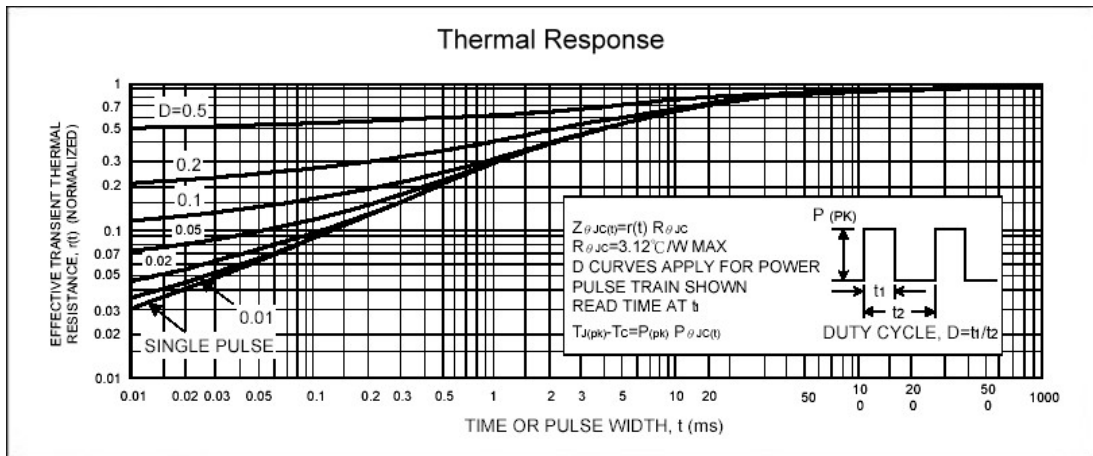
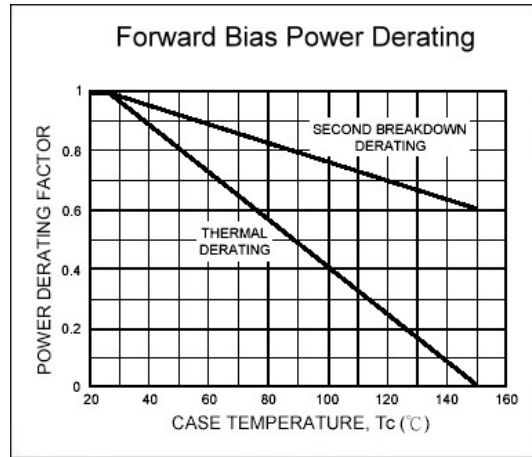
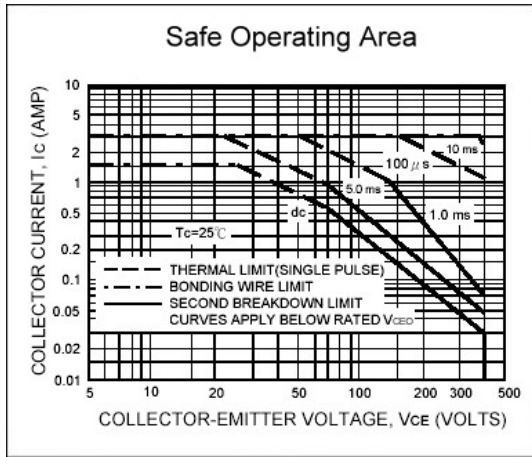
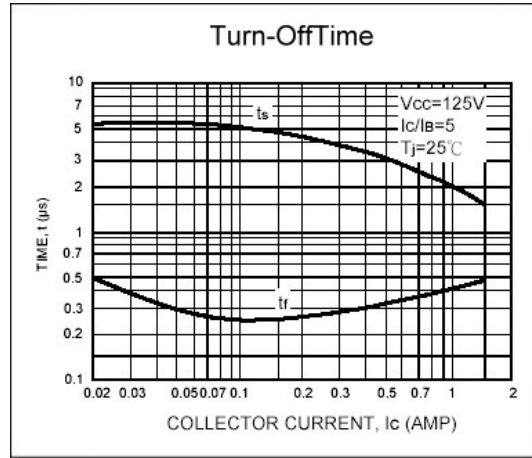
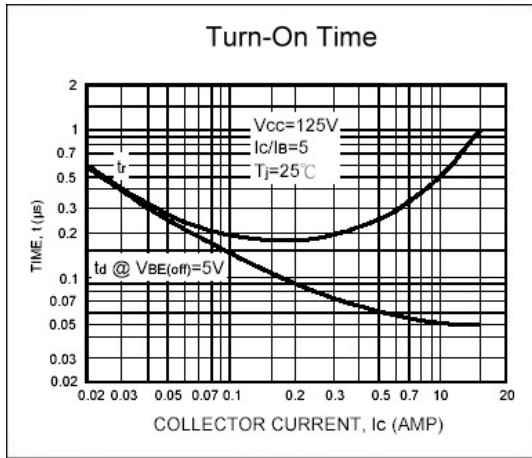
(1)Pulse Test: Pulse Width=300μs, Duty Cycle ≤ 2%

Classification Of HFE1

Rank	A	B	C	D	E	F
Range	8~16	15~21	20~26	25~31	30~36	35~40

Characteristics Curve





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Head Office And Factory:

- Taiwan: No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
- TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- China: (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
- TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165