

NPN SILICON POWER TRANSISTOR 2SC3568

DESCRIPTION The 2SC3568 is NPN silicon epitaxial transistor designed for switching regulator, DC-DC converter and high frequency power amplifier application.

- FEATURES**
- Easy mount by eliminating Insulation Sheet and Bushing.
 - Low Collector Saturation Voltage.
 - High Switching Speed.
 - Complementary to 2SA1396.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +150 °C

Junction Temperature 150 °C Maximum

Maximum Power Dissipation (T_c = 25 °C)

Total Power Dissipation 30 W

Maximum Voltages and Currents (T_a = 25 °C)

V_{CB0} Collector to Base Voltage 150 V

V_{CEO} Collector to Emitter Voltage 100 V

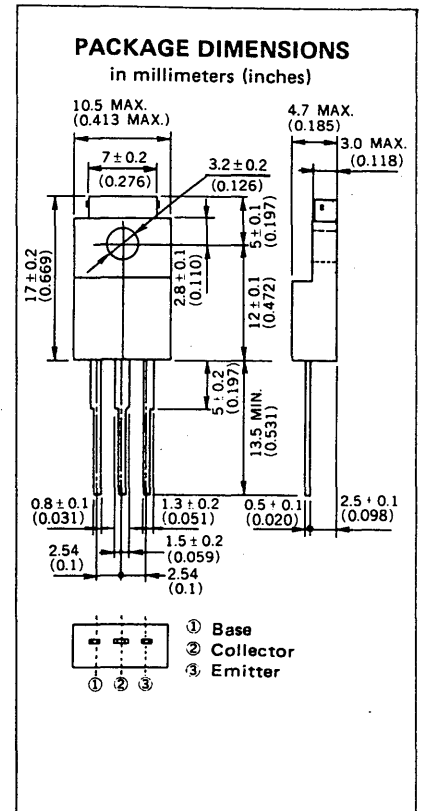
V_{EBO} Emitter to Base Voltage 7.0 V

I_{C(DC)} Collector Current (DC) 10 A

I_{C(pulse)} Collector Current (pulse)* 20 A

I_{B(DC)} Base Current (DC) 5.0 A

* PW ≤ 300 μs, Duty Cycle ≤ 10 %



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
t _{on}	Turn-on Time			0.5	μs	(I _C = 5.0 A, I _{B1} = -I _{B2} = 0.5 A R _L = 10 Ω, V _{CC} ≈ 50 V)
t _{stg}	Storage Time			1.5	μs	
t _f	Fall Time			0.5	μs	
h _{FE1}	DC Current Gain**	40			-	V _{CE} = 5.0 V, I _C = 0.5 A
h _{FE2}	DC Current Gain**	40		200	-	V _{CE} = 5.0 V, I _C = 3.0 A
h _{FE3}	DC Current Gain**	20			-	V _{CE} = 5.0 V, I _C = 5.0 A
V _{CE(sat)}	Collector Saturation Voltage**			0.6	V	I _C = 5.0 A, I _B = 0.5 A
V _{BE(sat)}	Base Saturation Voltage**			1.5	V	I _C = 5.0 A, I _B = 0.5 A
V _{CEO(SUS)}	Collector to Emitter Sustaining Voltage	100			V	I _C = 5.0 A, I _B = 0.5 A, L = 1 mH
V _{CEx(SUS)1}	Collector to Emitter Sustaining Voltage	100			V	I _C = 5.0 A, I _{B1} = -I _{B2} = 0.5 A, L = 180 μH, Clamped
V _{CEx(SUS)2}	Collector to Emitter Sustaining Voltage	100			V	I _C = 10 A, I _{B1} = 1.0 A, -I _{B2} = 0.5 A, L = 180 μH, Clamped
I _{CB0}	Collector Cutoff Current			10	μA	V _{CB} = 100 V, I _E = 0
I _{CER}	Collector Cutoff Current			1.0	mA	V _{CE} = 100 V, R _{BE} = 51 Ω, T _a = 125 °C
I _{CEx1}	Collector Cutoff Current			10	μA	V _{CE} = 100 V, V _{BE(OFF)} = -1.5 V
I _{CEx2}	Collector Cutoff Current			1.0	mA	V _{CE} = 100 V, V _{BE(OFF)} = -1.5 V, T _a = 125 °C
I _{EBO}	Emitter Cutoff Current			10	μA	V _{EB} = 5.0 V, I _C = 0

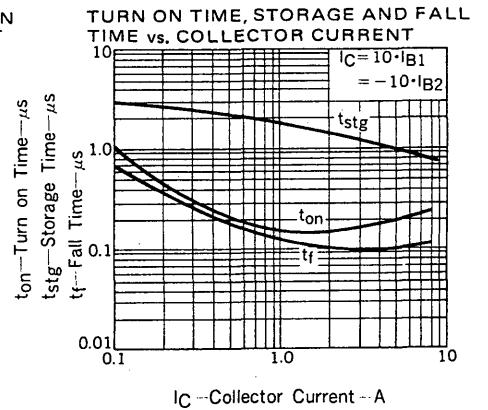
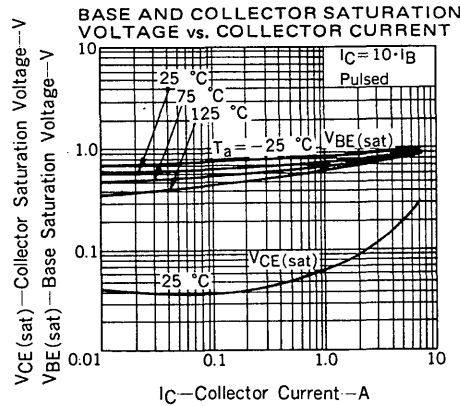
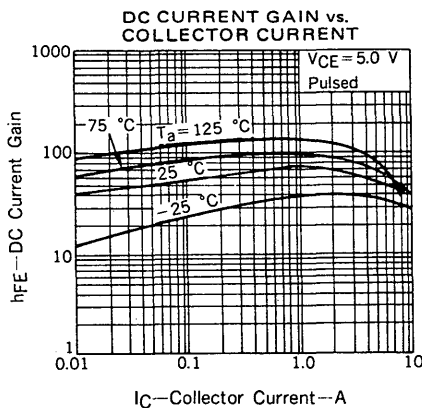
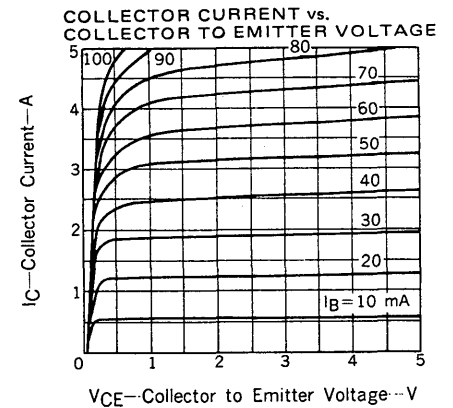
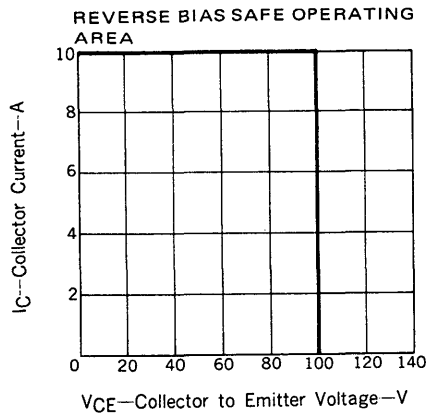
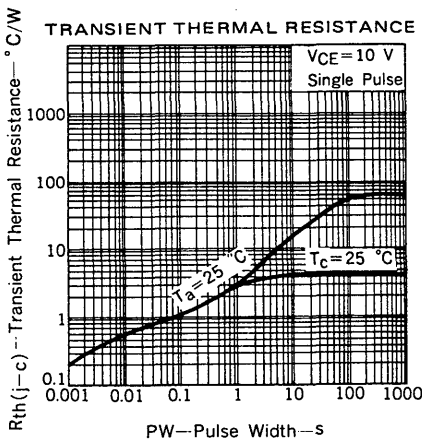
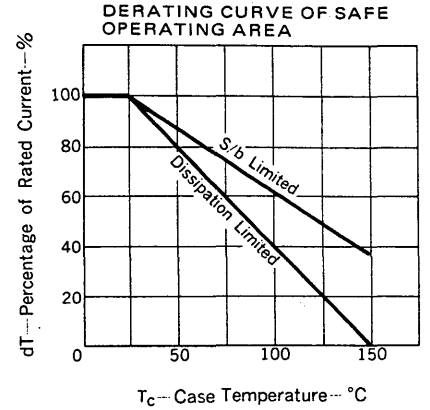
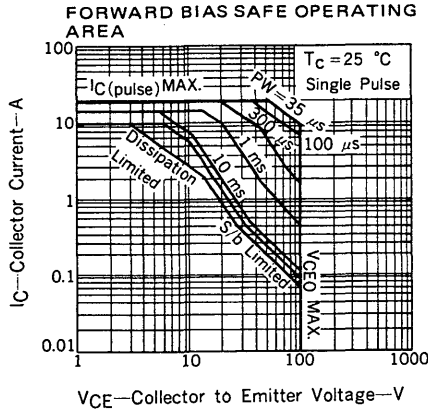
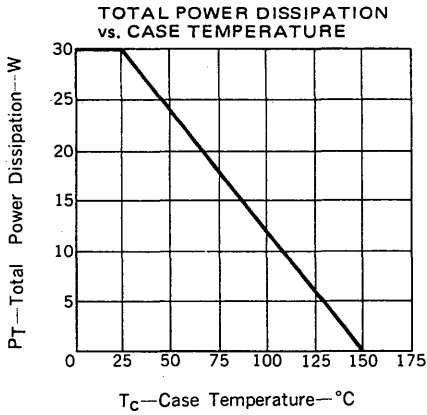
Classification of h_{FE2}

**PW ≤ 350 μs, Duty Cycle ≤ 2 %

Rank	M	L	K
Range	40 to 80	60 to 120	100 to 200

Test Conditions: V_{CE} = 5.0 V, I_C = 3.0 A

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



SWITCHING TIME (t_{on} , t_{stg} , t_f) TEST CIRCUIT

