

SILICON TRANSISTORS

2SC2885, 2946, 2946(1)

NPN SILICON EPITAXIAL TRANSISTOR FOR HIGH-VOLTAGE HIGH-SPEED SWITCHING

The 2SC2885, 2946, and 2946(1) are high-voltage high-speed switching power transistors featuring a small package (MP-3) which is suitable for high-density mounting. These transistors are ideal for drivers in DC/DC converters and switching regulators.

There are three types of transistors selectable according to the reliability requirments: 2SC2946 and 2946(1) for industrial use, 2SC2885 for general use. The 2SC2946(1) is produced with leads so as to enable mounting directly in a hybrid IC.

QUALITY GRADES

Standard

Please refer to "Quality Grades on NEC Semiconductor Devices" (Document No. C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	VcBo	330	٧
Collector to emitter voltage	VCEO	200	٧
Emitter to base voltage	V _{EBO}	7.0	٧
Collector current (DC)	Ic(DC)	2.0	Α
Collector current (pulse)	IC(pulse)*	4.0	Α
Base current (DC)	I _{B(DC)}	1.0	Α
Total power dissipation	P⊤ (Tc = 25°C)	15	W
Total power dissipation	P⊤ (Ta = 25°C)	600	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

^{*} PW \leq 300 μ s, duty cycle \leq 10%

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

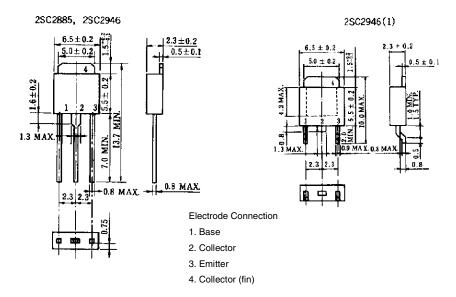
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector to emitter voltage VCEO(SUS)		Ic = 1.0 A, I _B = 0.1 A, L = 500 μ H*	200			V
Collector to emitter voltage	VCEX(SUS)	$Ic = 1.0 \text{ A}, I_{B1} = -I_{B2} = 0.1 \text{ A}^*$ Ta = 125°C, L = 180 μH , clamped	200			V
Collector cutoff current	Ісво	V _{CB} = 250 V, I _E = 0			10	μΑ
Collector cutoff current	ICEX1	$V_{CE} = 250 \text{ V}, V_{BE(OFF)} = -1.5 \text{ V}$			10	μΑ
Collector cutoff current	ICEX2	$V_{CE} = 250 \text{ V}, V_{BE(OFF)} = -1.5 \text{ V}, Ta = 125^{\circ}\text{C}$			1.0	mA
Emitter cutoff current	ІЕВО	V _{EB} = 5.0 V, I _C = 0			1.0	μΑ
DC current gain hFE1		Vce = 5.0 V, Ic = 0.1 A*	20	60	160	
	h _{FE2}	VcE = 5.0 V, Ic = 1.0 A*	15			
Collector saturation voltage	V _{CE(sat)}	Ic = 1.0 A, I _B = 0.1 A*			1.0	V
Base saturation voltage	V _{BE(sat)}	Ic = 1.0 A, IB = 0.1 A*			1.5	V
Turn-on time	ton	Ic = 1.0 A, R_L = 100 Ω			1.0	μs
Storage time	tstg	$I_{B1} = -I_{B2} = 0.1 \text{ A}, \text{ Vcc} \cong 100 \text{ V}$ Refer to the test circuit.			2.0	μs
Fall time	tf	neter to the test circuit.			1.0	μs

^{*} Pulse test PW \leq 350 μ s, duty cycle \leq 2%

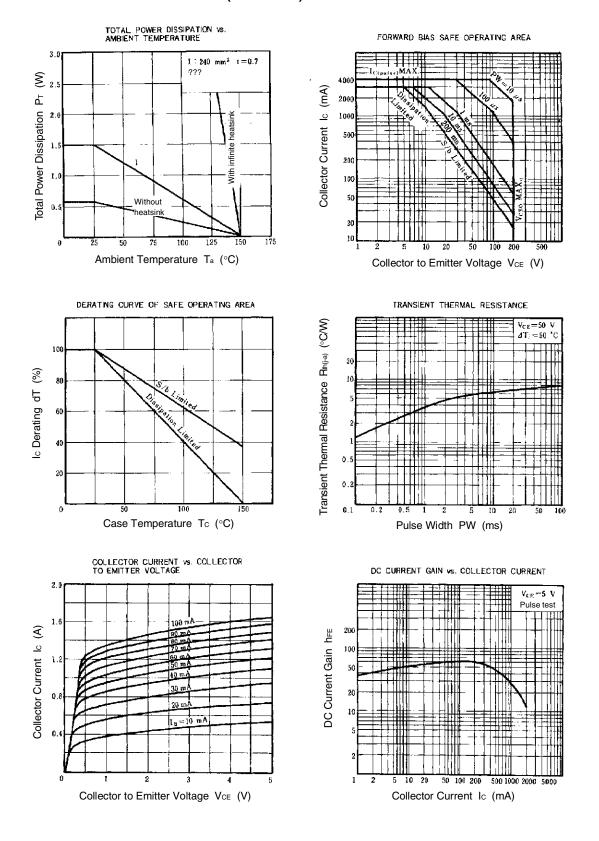
hfe CLASSIFICATION

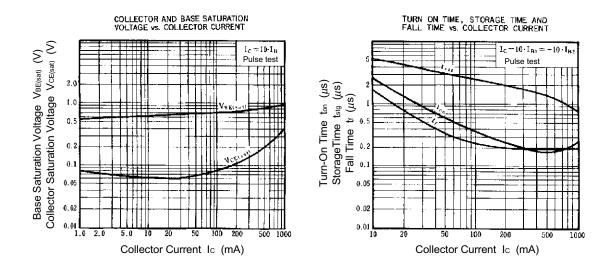
I	Marking	N	М	L	К
Ī	h _{FE1}	20 to 50	30 to 70	50 to 100	80 to 160

PACKAGE DRAWING (UNIT: mm)

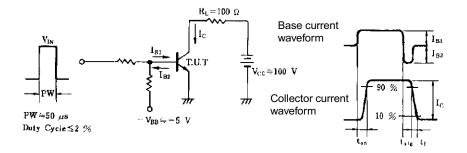


TYPICAL CHARACTERISTICS (Ta = 25°C)





SWITCHING TIME (ton, tstg, tf) TEST CIRCUIT





[MEMO]

- The information in this document is current as of July, 2001. The information is subject to change
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(Note)

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