

2SC2735

Silicon NPN Epitaxial

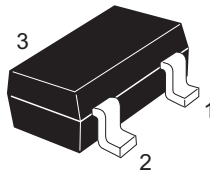
REJ03G0706-0200
(Previous ADE-208-1075)
Rev.2.00
Aug.10.2005

Application

UHF/VHF Local oscillator, frequency converter

Outline

RENESAS Package code: PLSP0003ZB-A
(Package name: MPAK)



1. Emitter
2. Base
3. Collector

Note: Marking is "JC".

Absolute Maximum Ratings

(Ta = 25°C)

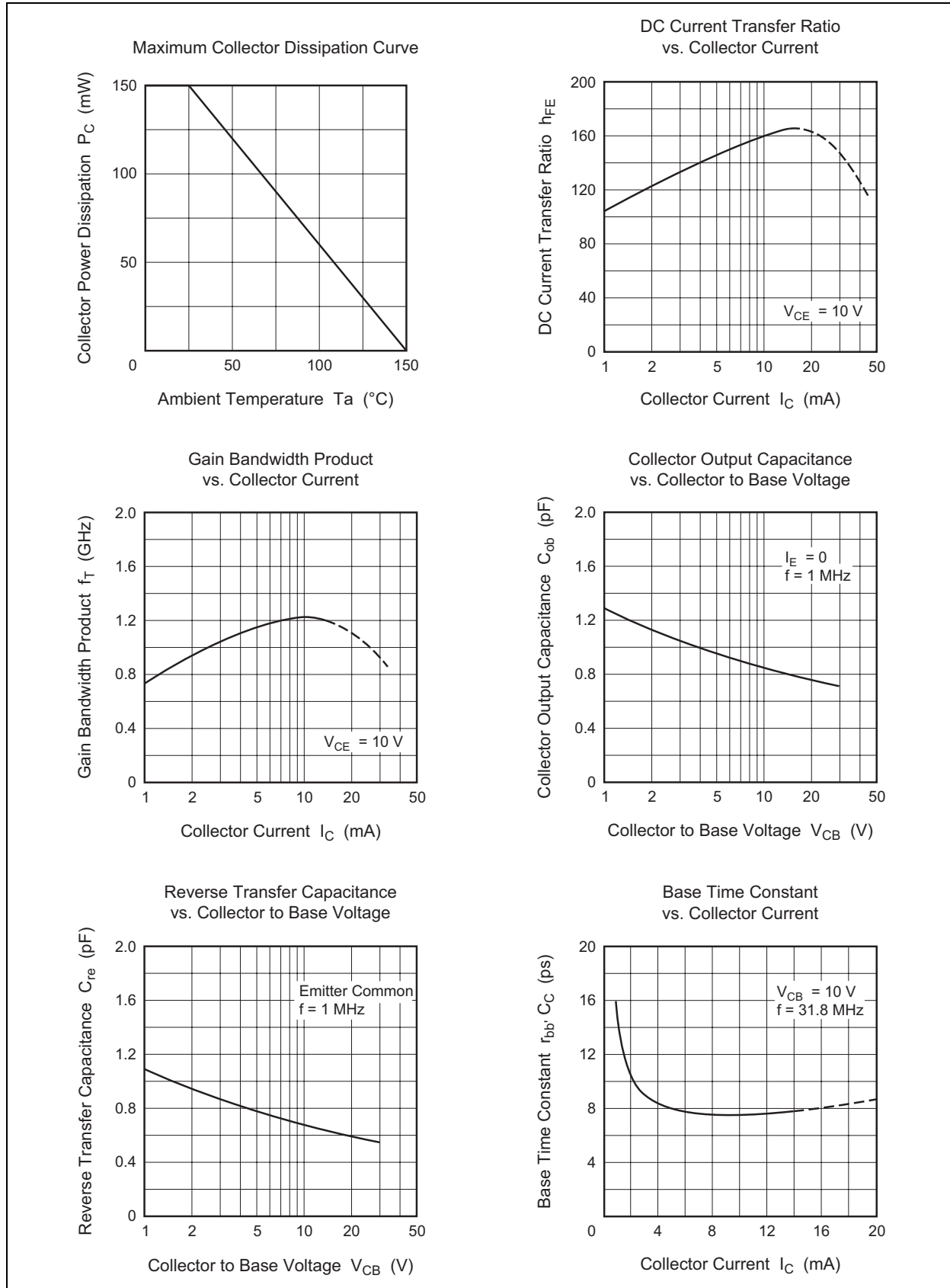
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

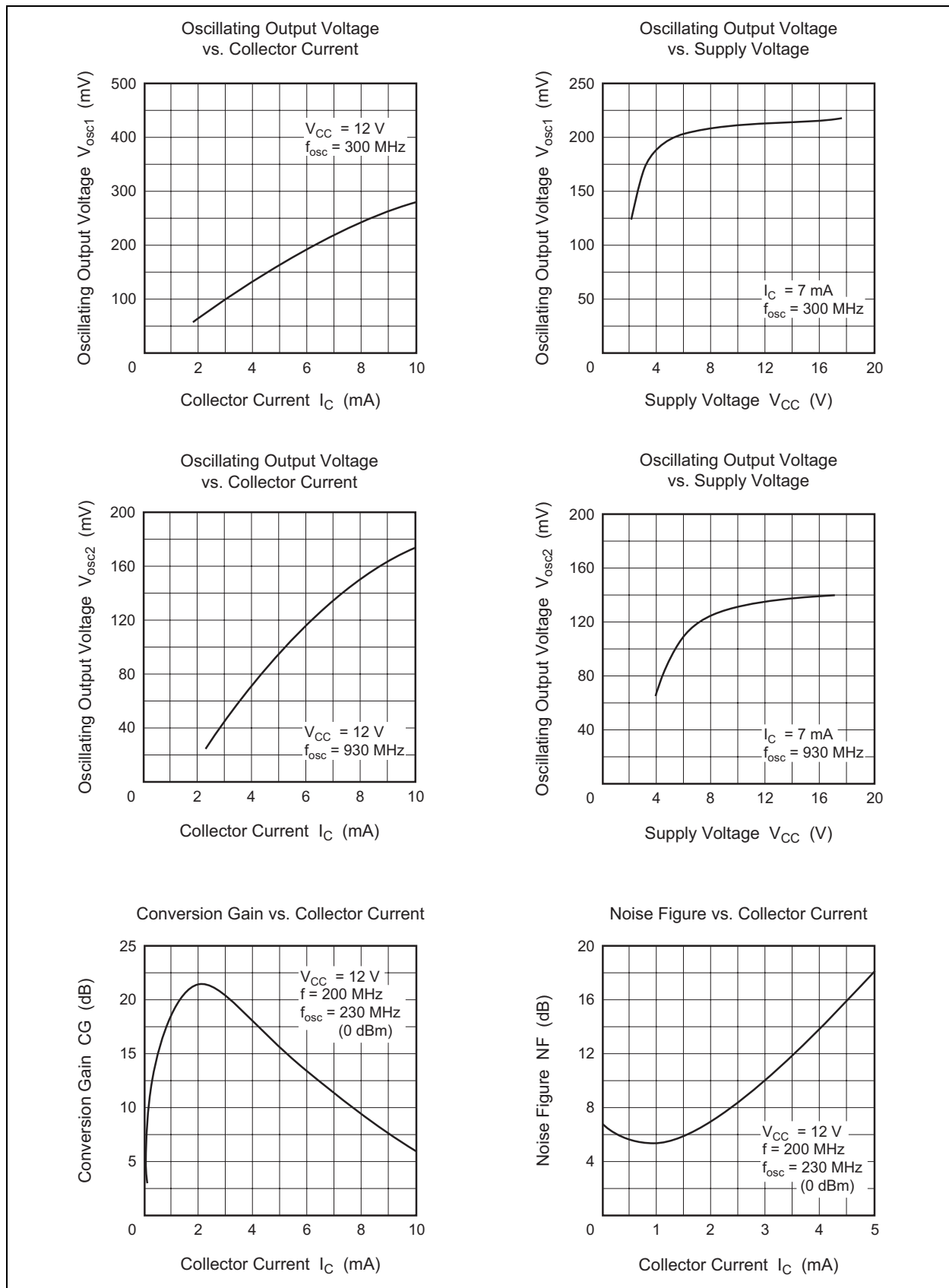
Electrical Characteristics

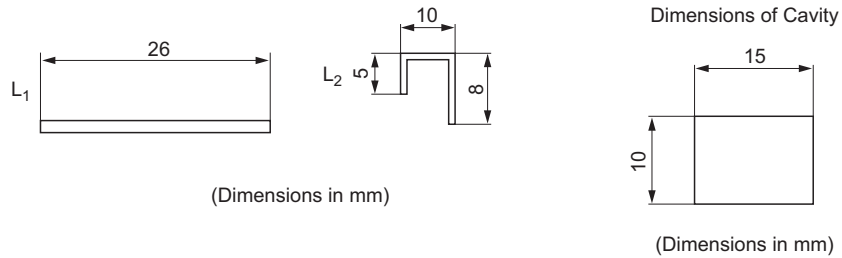
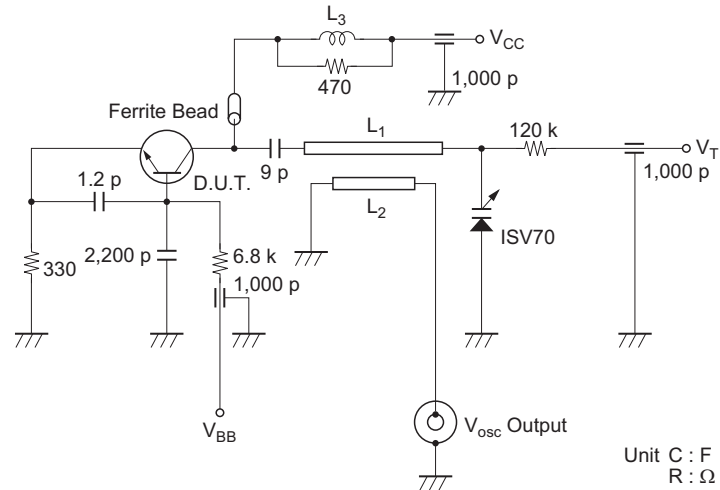
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	3	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10 \text{ V}, I_C = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	$I_C = 20 \text{ mA}, I_B = 4 \text{ mA}$
DC current transfer ratio	h_{FE}	40	—	—		$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.85	1.5	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Gain bandwidth product	f_T	600	1200	—	MHz	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Oscillating output voltage	V_{OSC1}	—	210	—	mV	$V_{CC} = 12 \text{ V}, I_C = 7 \text{ mA}, f_{OSC} = 300 \text{ MHz}$
	V_{OSC2}	—	130	—	mV	$V_{CC} = 12 \text{ V}, I_C = 7 \text{ mA}, f_{OSC} = 930 \text{ MHz}$
Conversion gain	CG	—	21	—	dB	$V_{CC} = 12 \text{ V}, I_C = 2 \text{ mA}, f = 200 \text{ MHz}, f_{OSC} = 230 \text{ MHz (0dBm)}$
Noise figure	NF	—	6.5	—	dB	$V_{CC} = 12 \text{ V}, I_C = 2 \text{ mA}, f = 200 \text{ MHz}, f_{OSC} = 230 \text{ MHz (0dBm)}$

Main Characteristics





V_{OSC2} UHF Oscillating Output Voltage Test Circuit

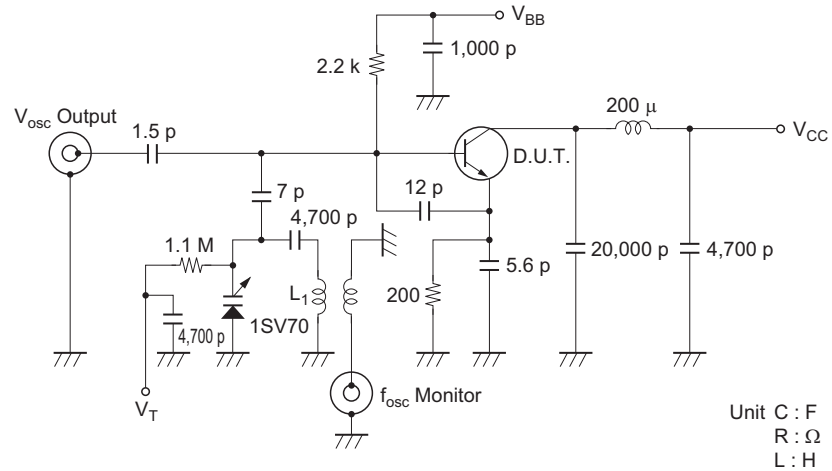
L₁ : Polyurethane Coated Copper Wire ϕ 1.0 mm

L₂ : Polyurethane Coated Copper Wire ϕ 0.8 mm

L₃ : ϕ 0.3 mm Enameled Copper wire, 10 Turns with 470 Ω (1/4W) Resistor.

Test Frequency : $f_{osc} = 930$ MHz

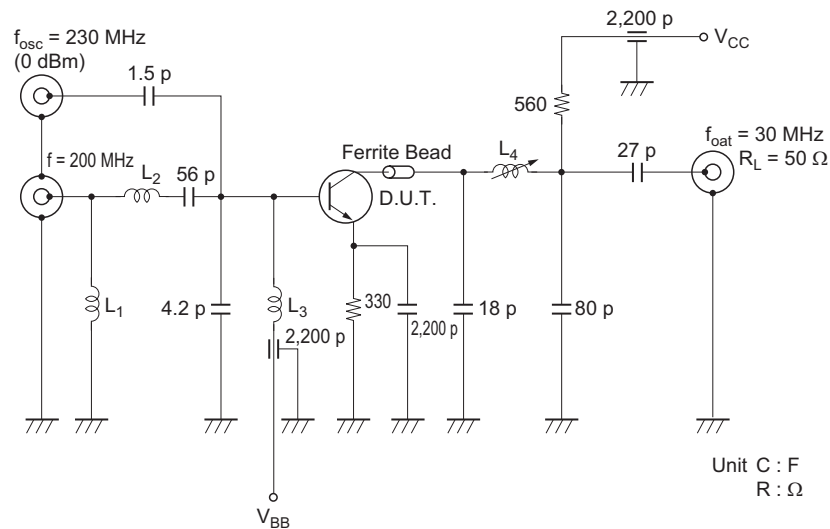
Test Equipment : YHP 4271A Vector Voltmeter

V_{OSC1} VHF Oscillating Output Voltage Test Circuit

L₁ : Inside dia φ3 mm, φ3 mm Enameled Copper Wire 12 Turns

Test Frequency : f_{osc} = 300 MHz

VHF Conversion Gain : Noise Figure Test Circuit



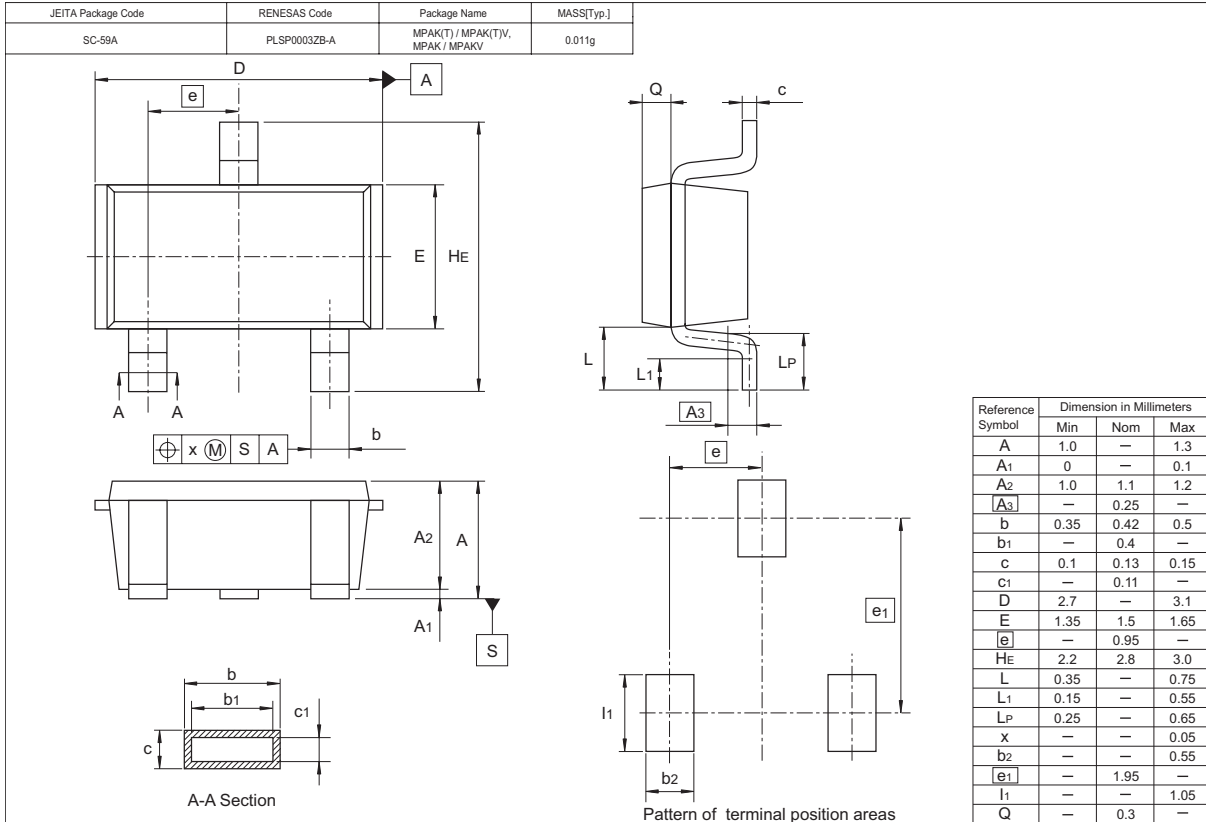
L₁ : Inside dia φ5 mm, φ0.5 mm Enameled Copper Wire 4 Turns

L₂ : Inside dia φ4 mm, φ0.5 mm Enameled Copper Wire 4 Turns

L₃ : Inside dia φ3 mm, φ0.2 mm Enameled Copper Wire 6 Turns

L₄ : Outside dia φ5 mm Bobbin, φ0.2 mm Enameled Copper Wire 16 Turns, using Ferrite bead.

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SC2735JTL-E	3000	φ 178 mm Reel, 8 mm Emboss Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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