

# 2SC3127

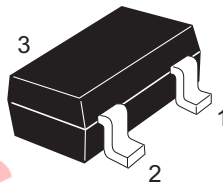
Silicon NPN Epitaxial

REJ03G0711-0300  
(Previous ADE-208-1080A)  
Rev.3.00  
Aug.10.2005

## Application

UHF/VHF wide band amplifier

## Outline

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

1. Emitter
2. Base
3. Collector

Note: Marking for 2SC3127 is "ID-".

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	20	V
Collector to emitter voltage	$V_{CEO}$	12	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

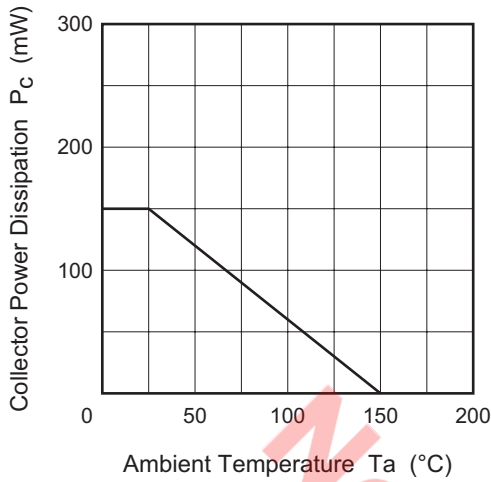
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	20	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	12	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter cutoff current	$I_{EBO}$	—	—	10	$\mu A$	$V_{EB} = 3 \text{ V}, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu A$	$V_{CB} = 12 \text{ V}, I_E = 0$
DC current transfer ratio	$h_{FE}$	30	90	200		$V_{CE} = 5 \text{ V}, I_C = 20 \text{ mA}$
Collector output capacitance	$C_{ob}$	—	0.9	1.5	pF	$V_{CB} = 5 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Gain bandwidth product	$f_T$	3.5	4.5	—	GHz	$V_{CE} = 5 \text{ V}, I_C = 20 \text{ mA}$
Power gain	PG	—	10.5	—	dB	$V_{CE} = 5 \text{ V}, I_C = 20 \text{ mA}, f = 900 \text{ MHz}$
Noise figure	NF	—	2.2	—	dB	$V_{CE} = 5 \text{ V}, I_C = 5 \text{ mA}, f = 900 \text{ MHz}$

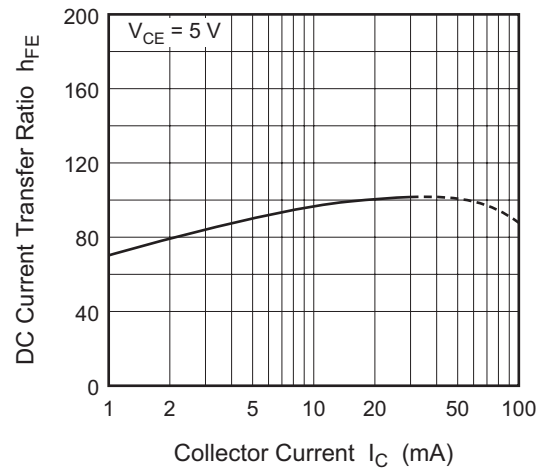
Not recommend  
for new design

Main Characteristics

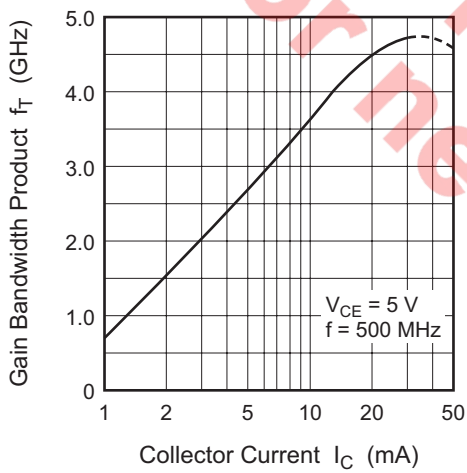
Maximum Collector Dissipation Curve



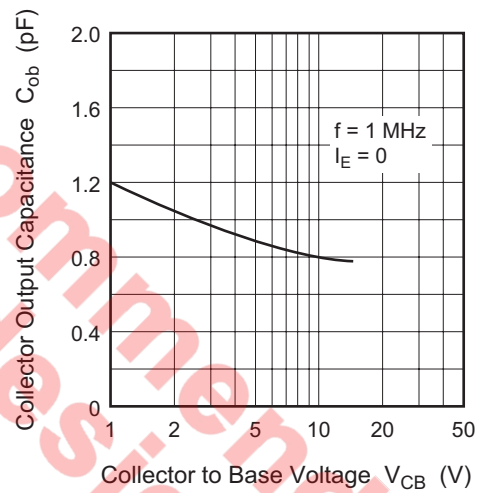
DC Current Transfer Ratio vs. Collector Current



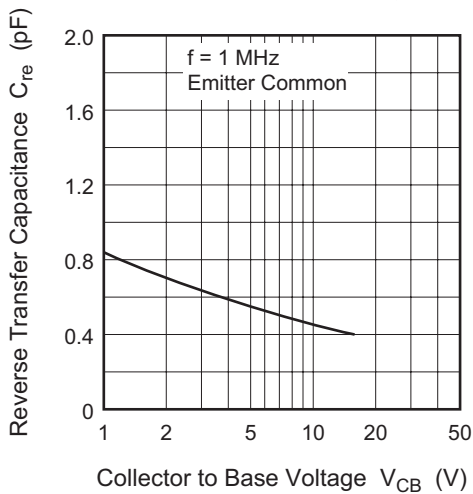
Gain Bandwidth Product vs. Collector Current



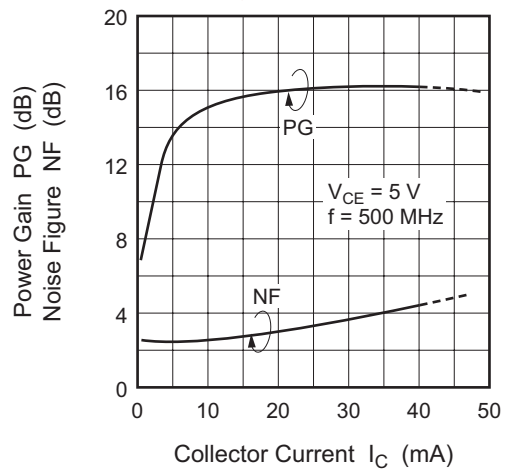
Collector Output Capacitance vs. Collector to Base Voltage



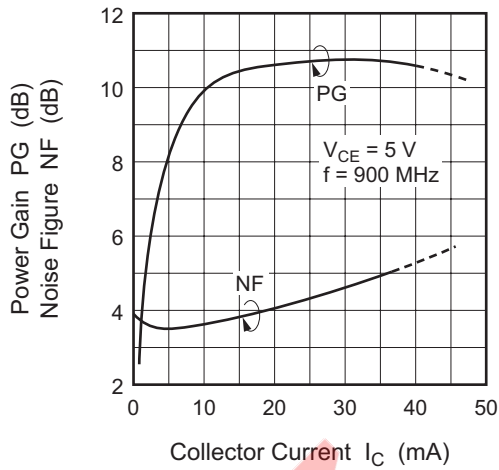
Reverse Transfer Capacitance vs. Collector to Base Voltage



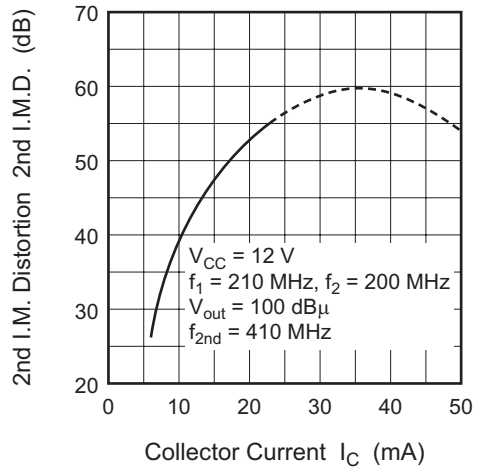
Power Gain and Noise Figure vs. Collector Current



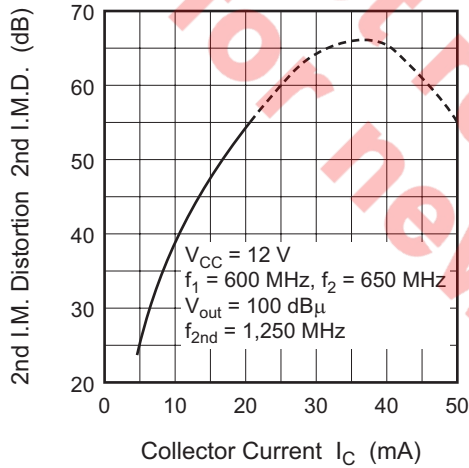
Power Gain and Noise Figure vs. Collector Current



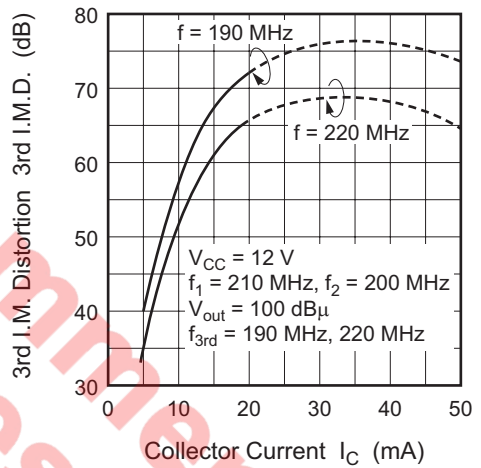
2nd I.M. Distortion vs. Collector Current



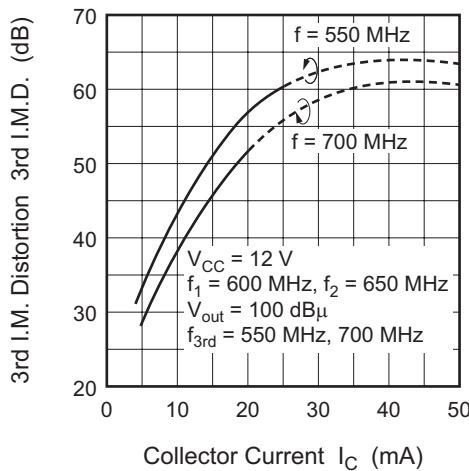
2nd I.M. Distortion vs. Collector Current



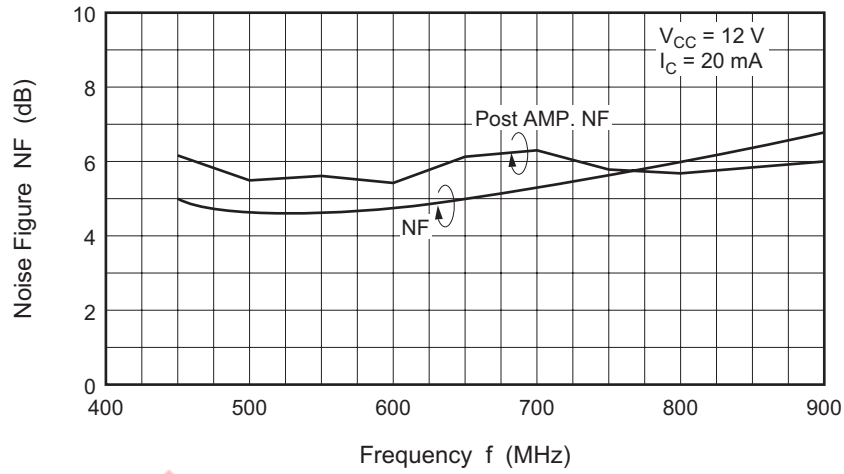
3rd I.M. Distortion vs. Collector Current



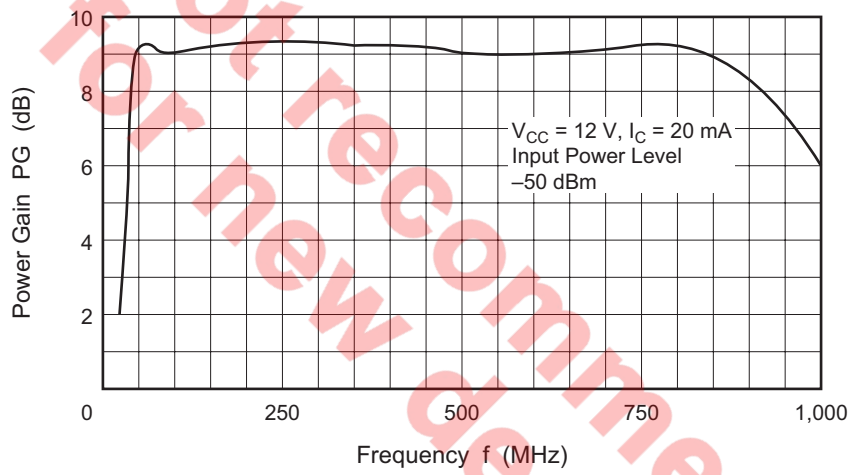
3rd I.M. Distortion vs. Collector Current



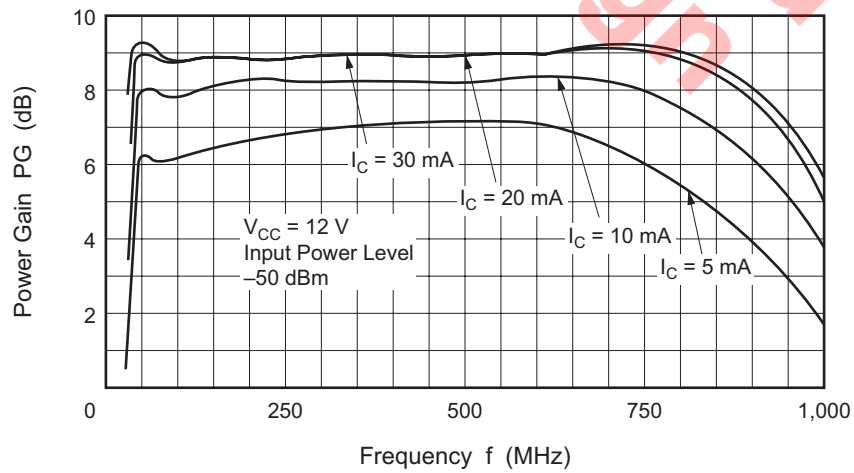
Noise Figure vs. Frequency

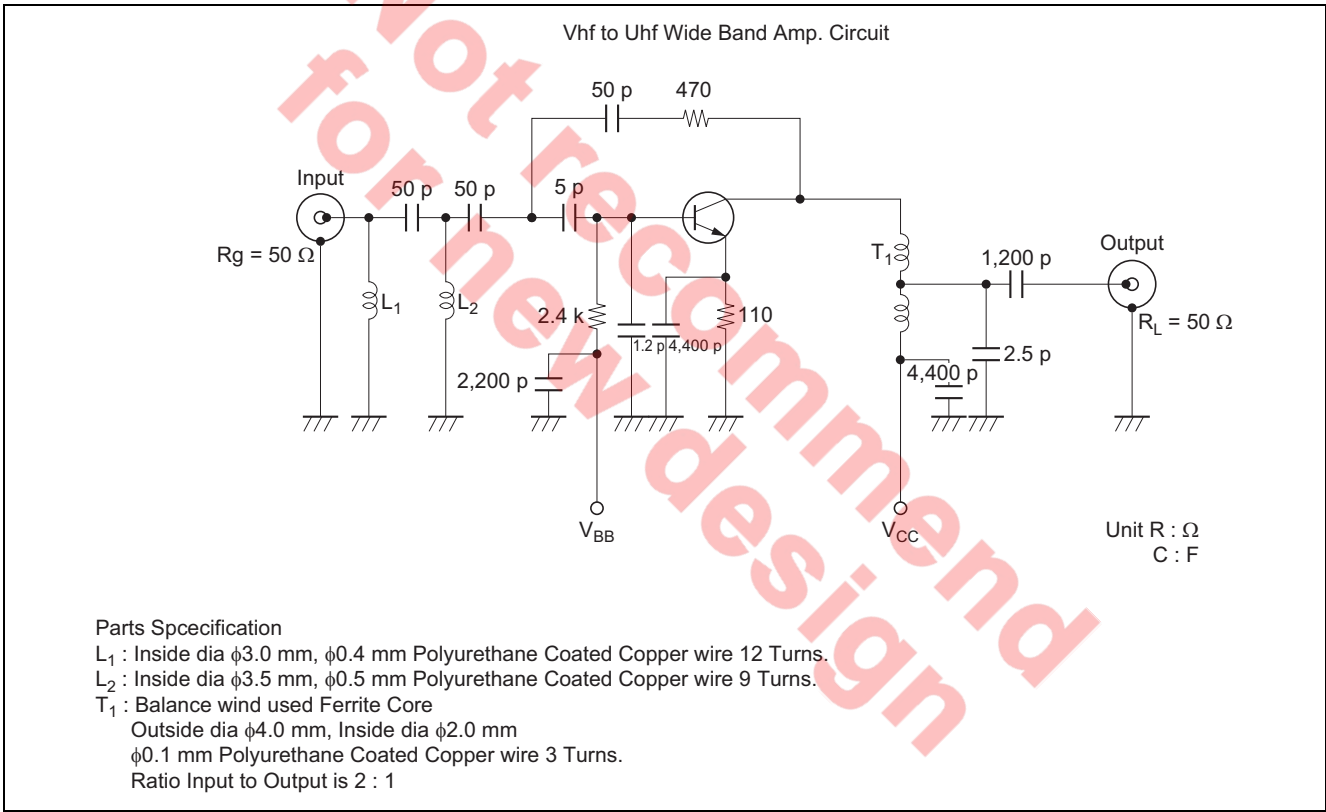
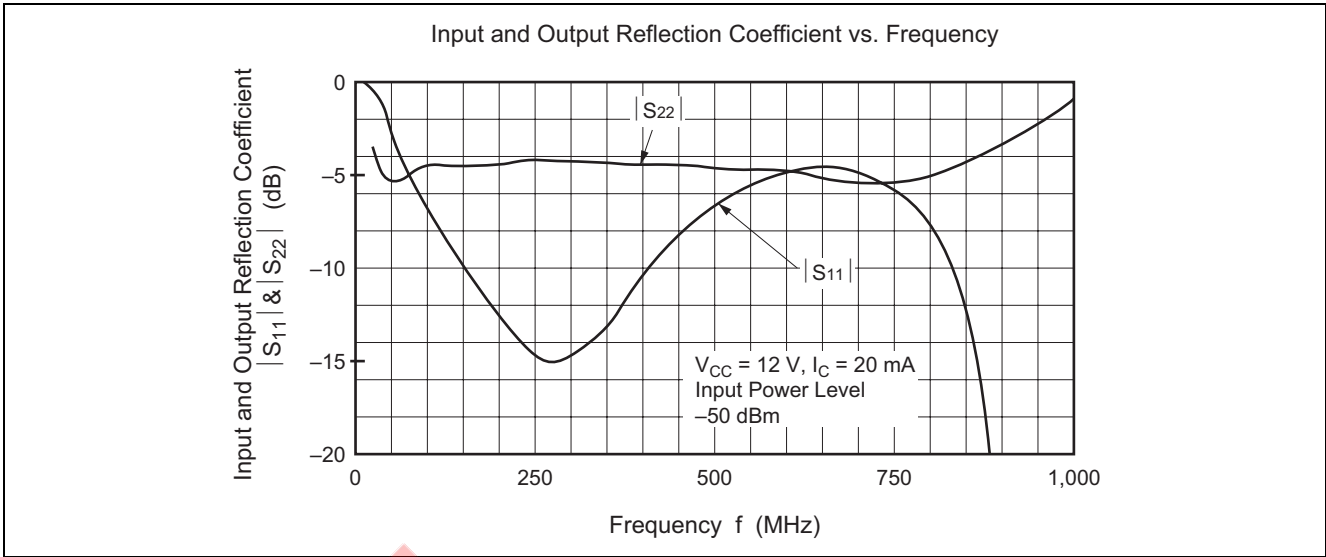


Power Gain vs. Frequency

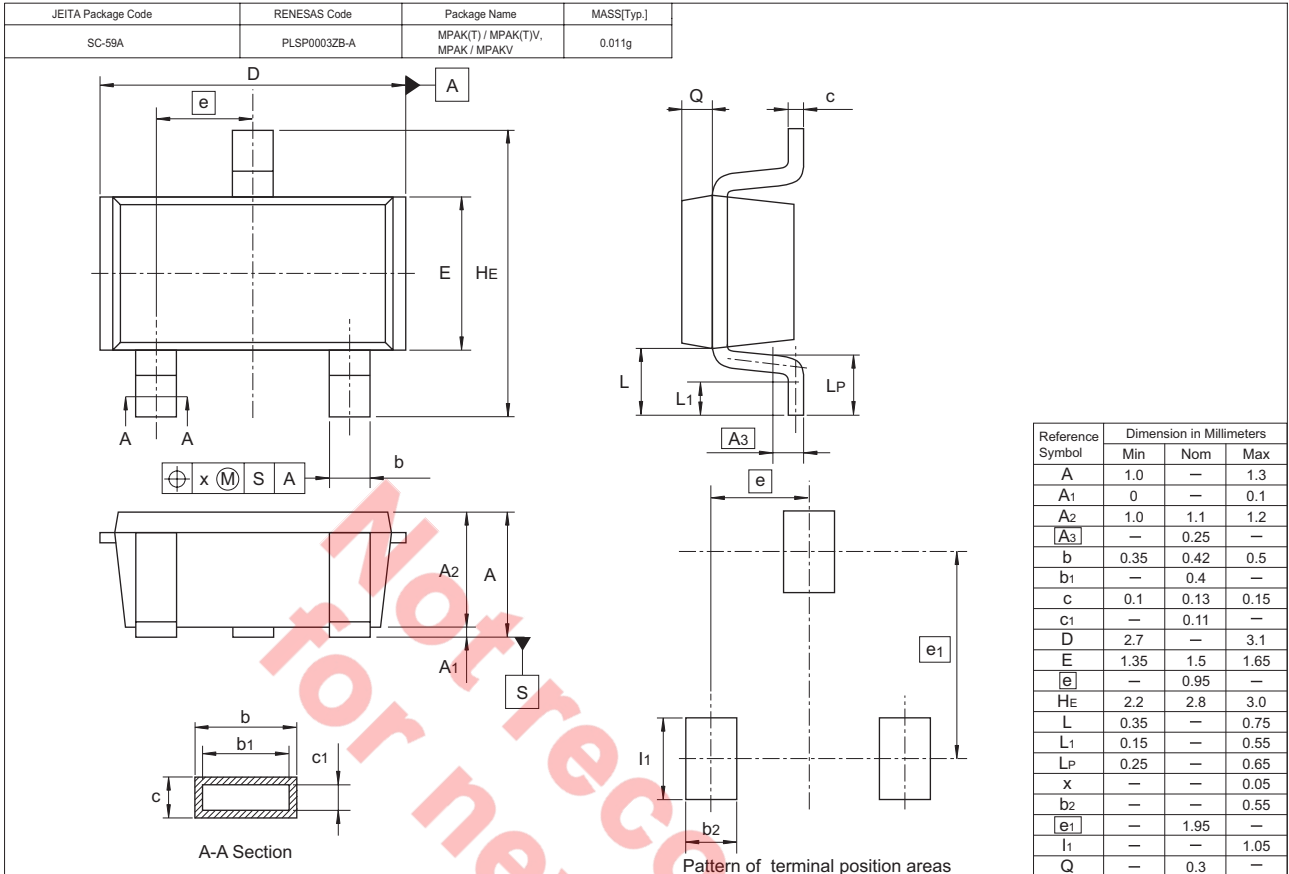


Power Gain vs. Frequency





### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SC3127ID-TL-E	3000	φ 178 mm Reel, 8 mm Emboss Taping

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