BRA144ECM Series

PNP Built-in Resistor Transistor CMPAK Series
Inverter, Driver, Switching

HITACHI

ADE-208-1444B (Z)

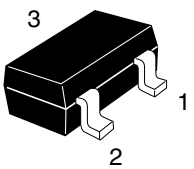
Rev.2
Sep. 2001

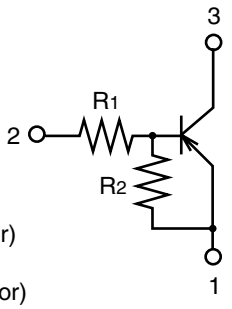
Features

- Built–in Resistor Type
- Simplifies Circuit Design
- Reduces Board Space
- Complementary pair with BRC144ECM series

Outline

CMPAK





1. Ground (Emitter)
2. Input (Base)
3. Output (Collector)

Note: Marking is shown in below.

Device	Marking	R1 (kΩ)	R2 (kΩ)
BRA144ECM	AG	47	47
BRA124ECM	CG	22	22
BRA114ECM	EG	10	10
BRA143ECM	GG	4.7	4.7
BRA123ECM	JG	2.2	2.2

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Absolute Maximum Ratings

(Ta = 25°C)

Item		Symbol	Ratings	Unit
Supply voltage		V_{CC}	–50	V
Input voltage	BRA144ECM	V_I	+10 to –50	V
	BRA124ECM		+10 to –45	
	BRA114ECM		+10 to –30	
	BRA143ECM		+10 to –20	
	BRA123ECM		+10 to –15	
Output current		I_O	–100	mA
Total power dissipation		P_T*	150	mW
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to +150	°C

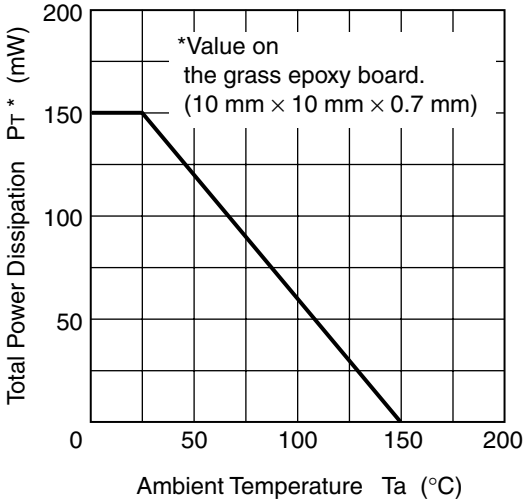
*Value on the glass epoxy board. (10 mm × 10 mm × 0.7 mm)

Electrical Characteristics

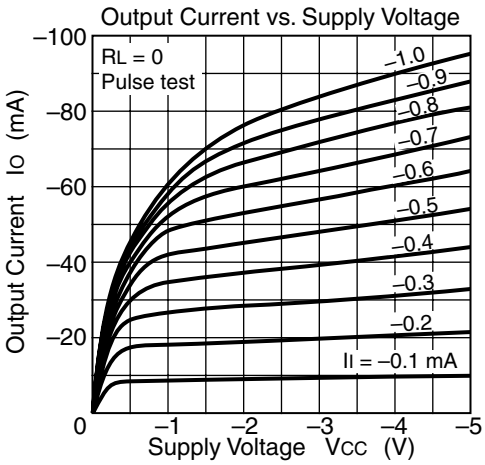
(Ta = 25°C)

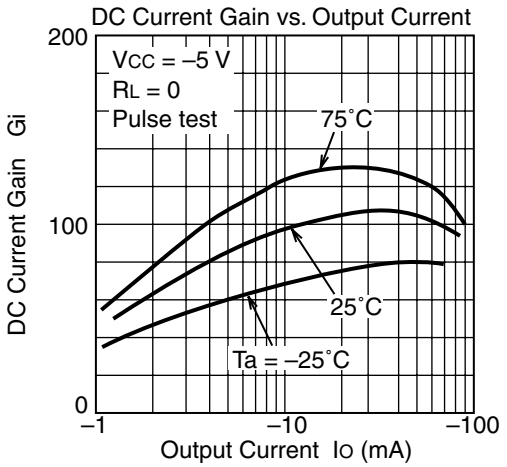
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Input on voltage	BRA144ECM	$V_{I(on)}$	–1.5	—	–4.5	V	V_{CC} = –0.3 V, I_O = –5 mA
	BRA124ECM		–1.3	—	–3.0		
	BRA114ECM		–1.2	—	–2.4		
	BRA143ECM		–1.1	—	–2.0		
	BRA123ECM		–1.1	—	–1.8		
Input off voltage	BRA144ECM	$V_{I(off)}$	–1.0	—	–1.5	V	V_{CC} = –5 V, I_O = –100 µA
	BRA124ECM		–1.0	—	–1.5		
	BRA114ECM		–1.0	—	–1.5		
	BRA143ECM		–1.0	—	–1.5		
	BRA123ECM		–1.0	—	–1.5		
Output saturation voltage		$V_{O(on)}$	—	—	–0.3	V	I_O = –10 mA, I_I = –0.5 mA
Output cutoff current		$I_{O(off)}$	—	—	–0.5	µA	V_{CC} = –50 V, I_I = 0
DC current transfer ratio	BRA144ECM	Gi	70	—	—		V_{CC} = –5 V, I_O = –5 mA
	BRA124ECM		56	—	—		
	BRA114ECM		30	—	—		
	BRA143ECM		20	—	—		V_{CC} = –5 V, I_O = –10 mA
	BRA123ECM		20	—	—		V_{CC} = –5 V, I_O = –20 mA
Input resistance	BRA144ECM	R_1	33	47	61	kΩ	
	BRA124ECM		15	22	28		
	BRA114ECM		7	10	13		
	BRA143ECM		3.3	4.7	6.1		
	BRA123ECM		1.5	2.2	2.8		
Resistance ratio		R_1/R_2	0.8	1.0	1.2		

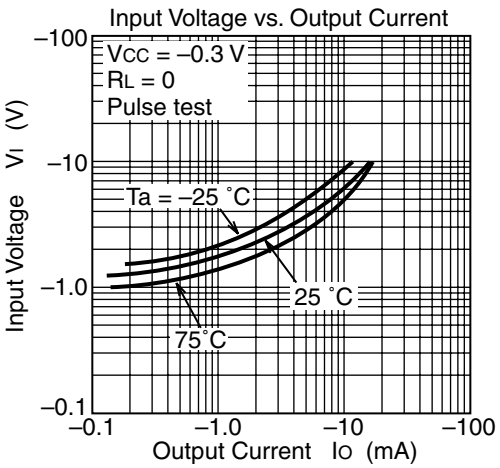
Total Power Dissipation Curve

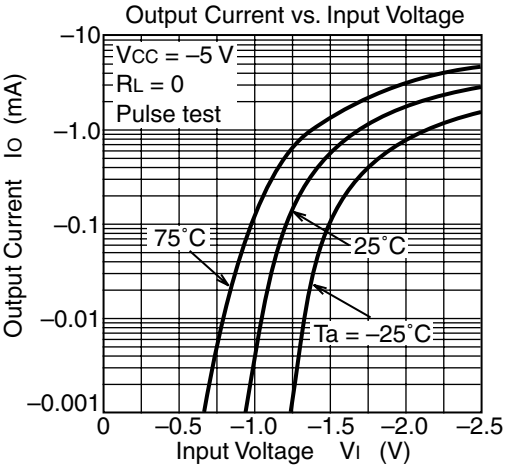


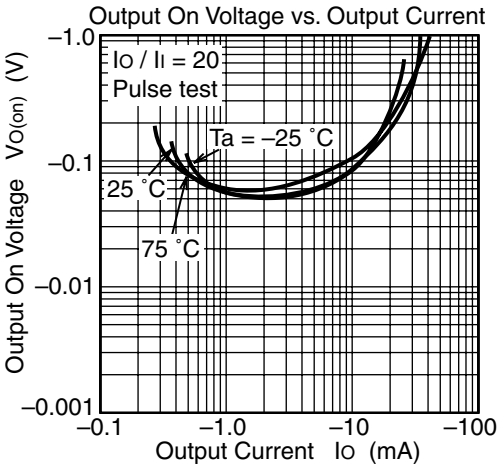
Main Characteristics (BRA144ECM)



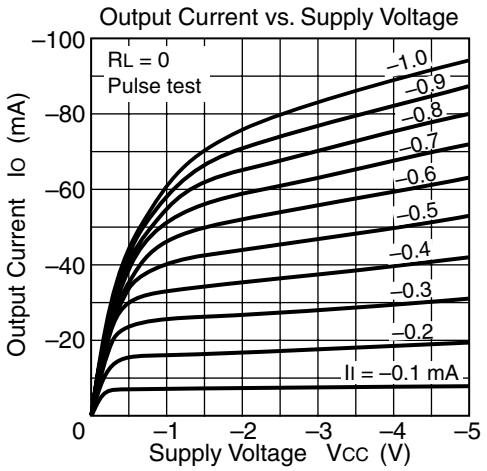


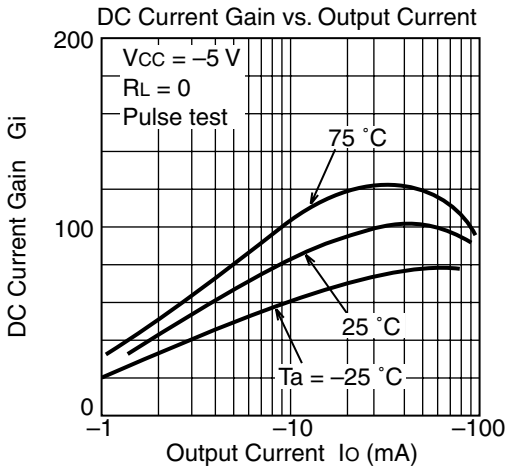


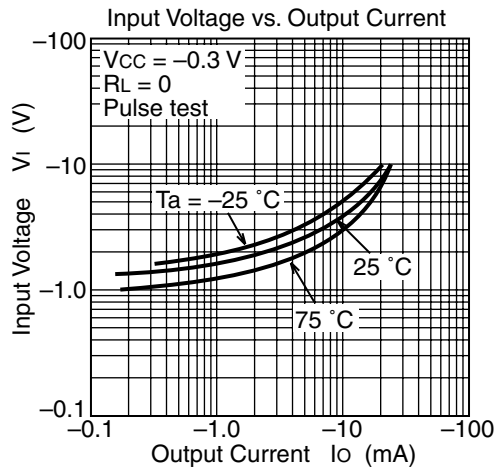


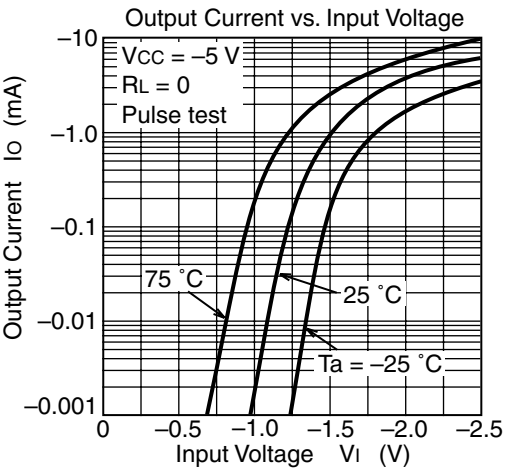


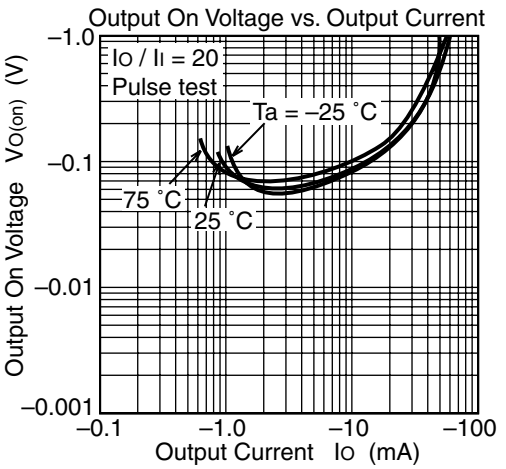
Main Characteristics (BRA124ECM)



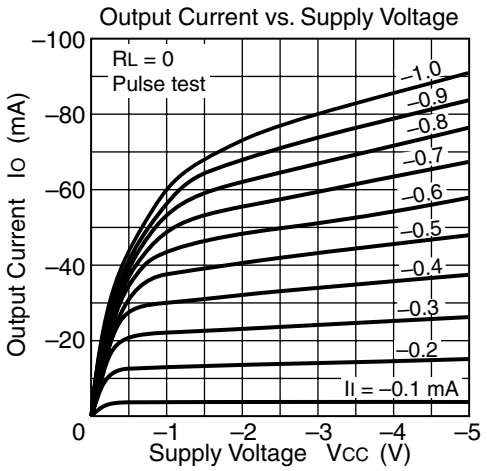


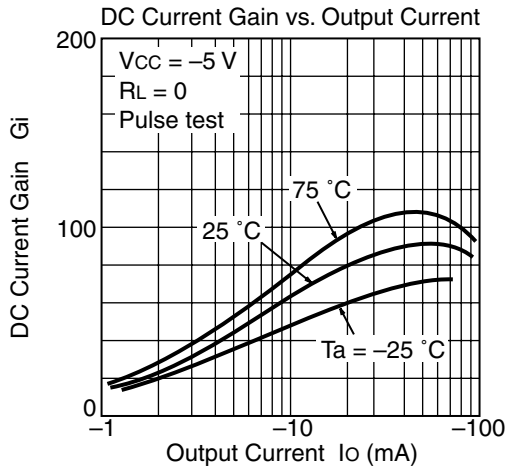


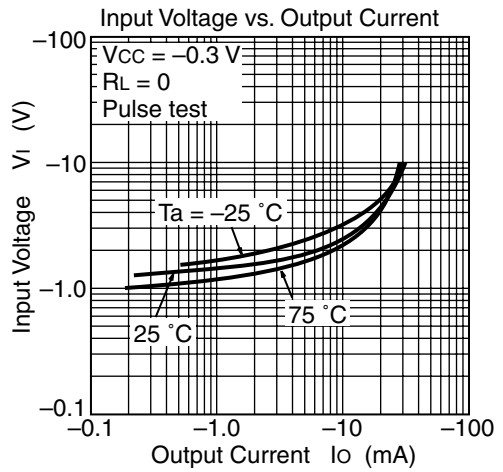


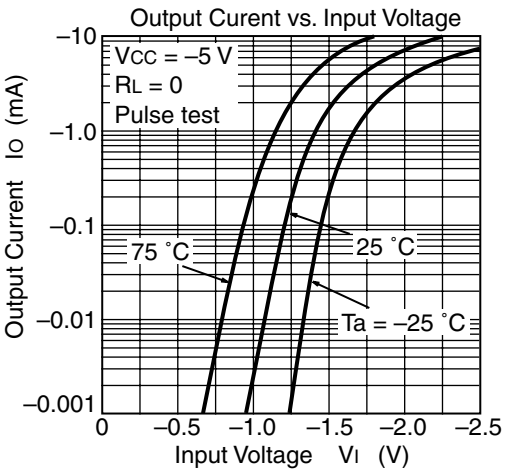


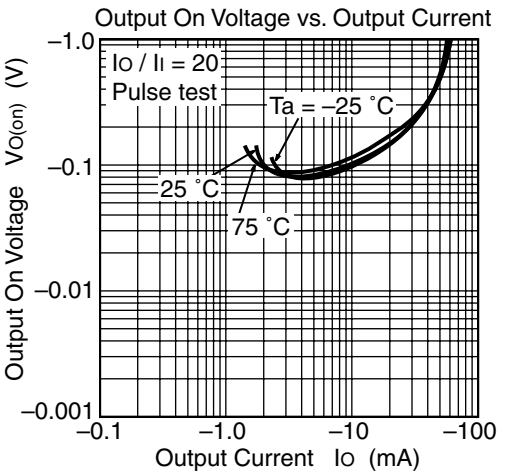
Main Characteristics (BRA114ECM)











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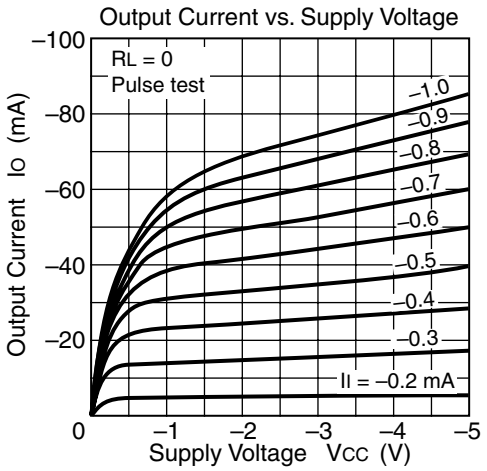

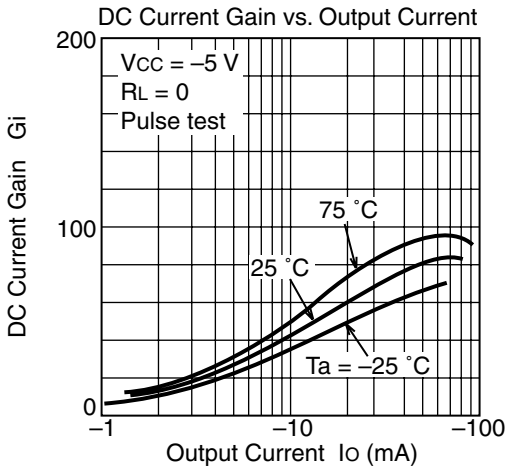

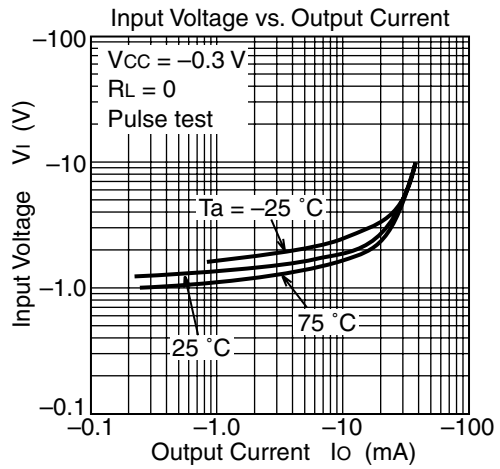

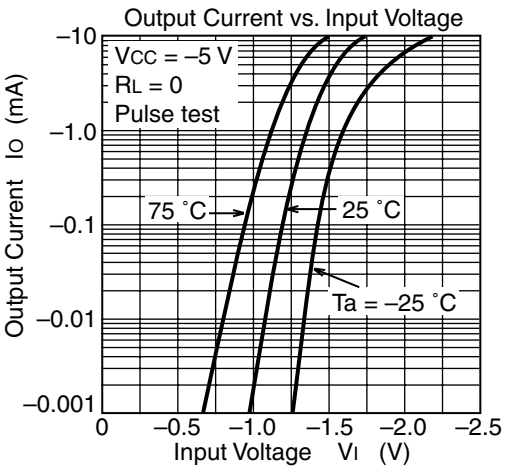

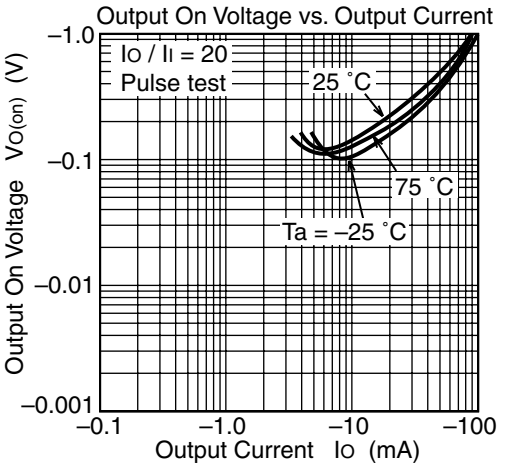

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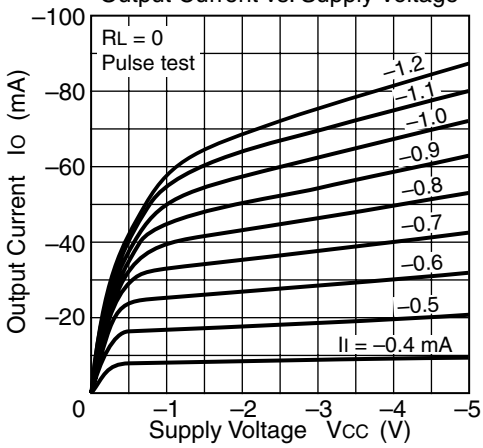
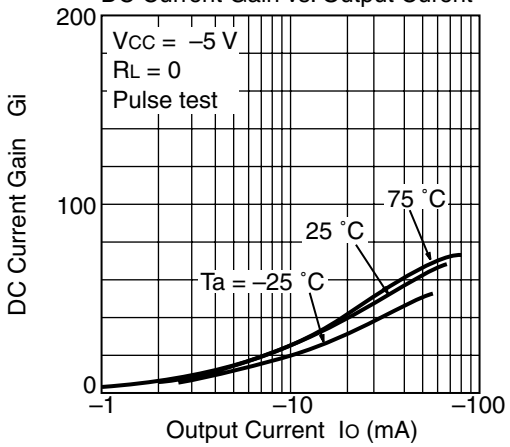
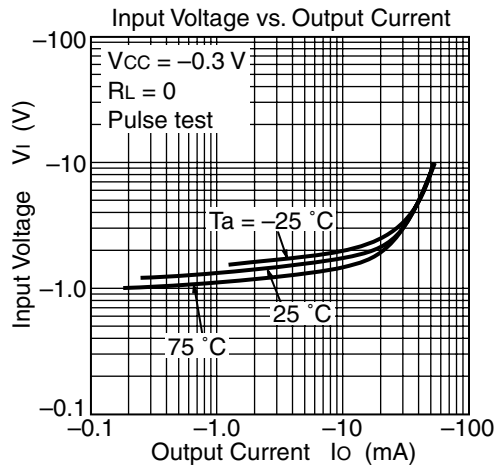
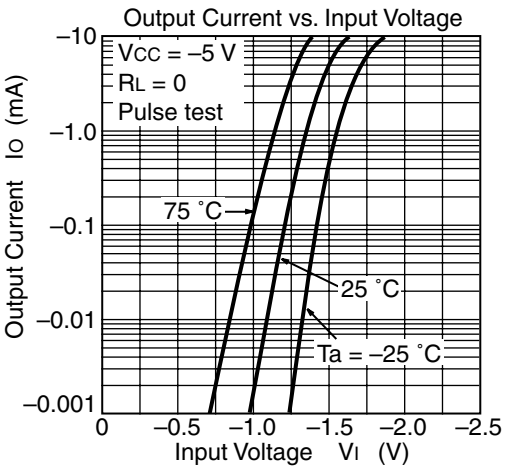
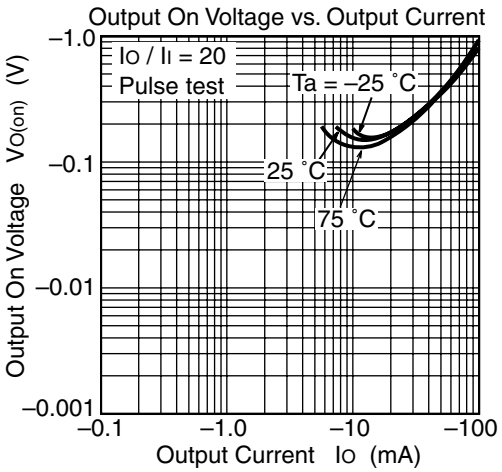










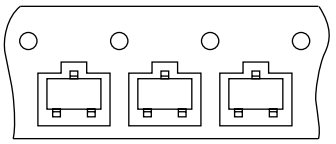
Taping Specification

There are two different size reels in CMPAK packaging.

Packing to “Left” direction

Purchasing Identification Code

Standard Reel 3000 pcs/reel: Type No. + Mark **TL**
Large Reel 12000 pcs/reel: Type No. + Mark **UL**

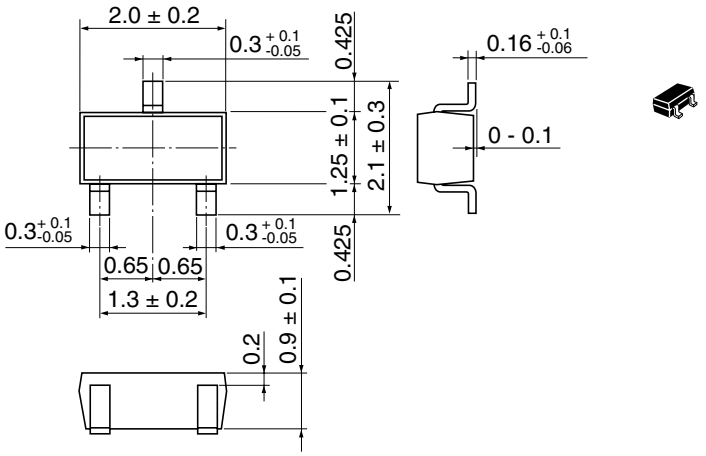


Marking face is up.
Center lead goes to left.

Direction of feed

Package Dimensions

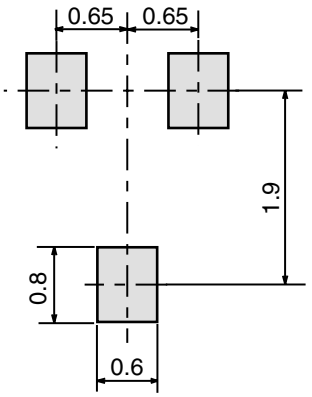
As of January, 2001
Unit: mm



Hitachi Code	CMPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.006 g

Footprint

CMPAK



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Sales Offices

HITACHI

Hitachi, Ltd.
Semiconductor & Integrated Circuits
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: (03) 3270-2111 Fax: (03) 3270-5109

URL http://www.hitachisemiconductor.com/

For further information write to:

Hitachi Semiconductor (America) Inc.
179 East Tasman Drive
San Jose,CA 95134
Tel: <1> (408) 433-1990
Fax: <1>(408) 433-0223

Hitachi Europe Ltd.
Electronic Components Group
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 585200

Hitachi Europe GmbH
Electronic Components Group
Dornacher Straße 3
D-85622 Feldkirchen
Postfach 201, D-85619 Feldkirchen
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Asia Ltd.
Hitachi Tower
16 Collyer Quay #20-00
Singapore 049318
Tel : <65>-538-6533/538-8577
Fax : <65>-538-6933/538-3877
URL : http://semiconductor.hitachi.com.sg

Hitachi Asia Ltd.
(Taipei Branch Office)
4/F, No. 167, Tun Hwa North Road
Hung-Kuo Building
Taipei (105), Taiwan
Tel : <886>-(2)-2718-3666
Fax : <886>-(2)-2718-8180
Telex : 23222 HAS-TP
URL : http://www.hitachi.com.tw

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon Hong Kong
Tel : <852>-(2)-735-9218
Fax : <852>-(2)-730-0281
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