

GN4014ZB4LD, GN4014ZB4LS, GN4014ZB4LM

Silicon IGBT Ignition Coil Driver

REJ03G1249-0200

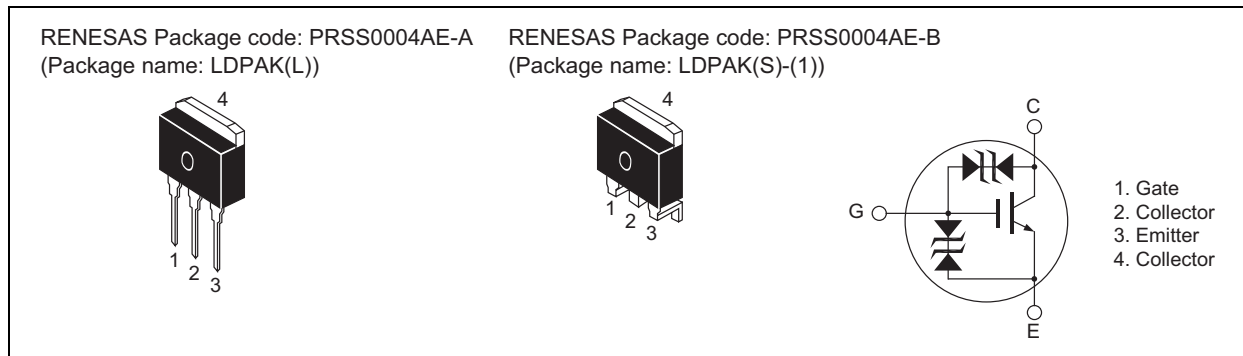
Rev.2.00

Jul. 14, 2005

Features

- Including Clamping Zener
 $V_{CL} = 400 \text{ V}(\text{typ})$
- Low saturation Voltage
 $V_{CE(\text{sat})} = 1.4 \text{ V}(\text{typ})$
- SMD package
LDBPAK

Outline



Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Collector to emitter voltage	V_{CES}	370	V
Gate to Emitter voltage	V_{GES}	± 20	V
Emitter to Collector voltage	V_{ECS}	24	V
Collector current	I_C	14	A
Collector peak current	$i_{C(\text{peak})}$	18	A
Collector power dissipation	P_C ^{Note1}	60	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

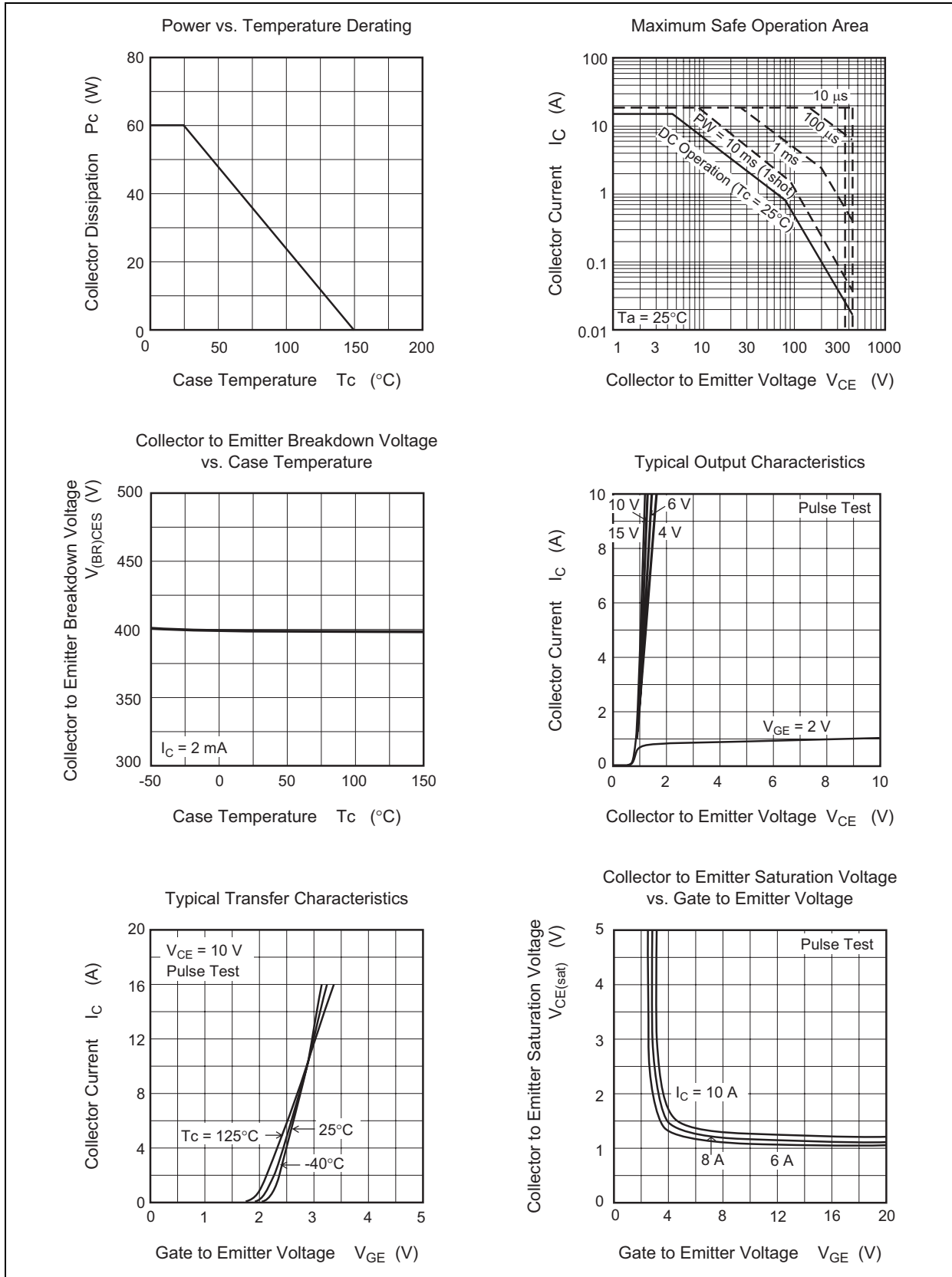
Notes: 1. Value at $T_c = 25^\circ\text{C}$

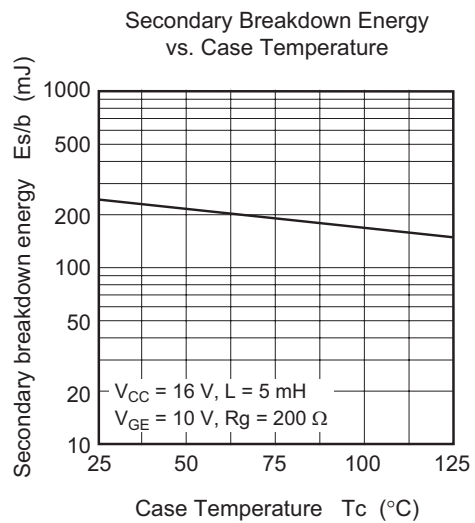
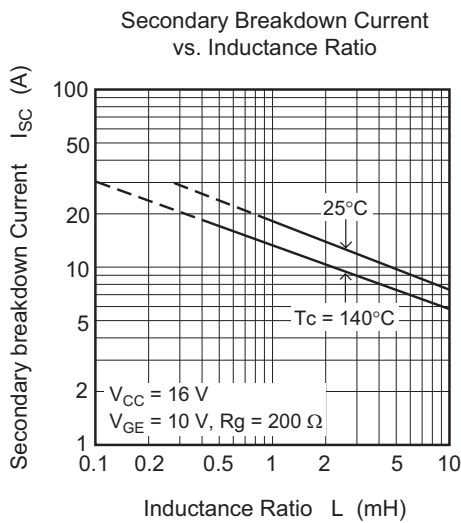
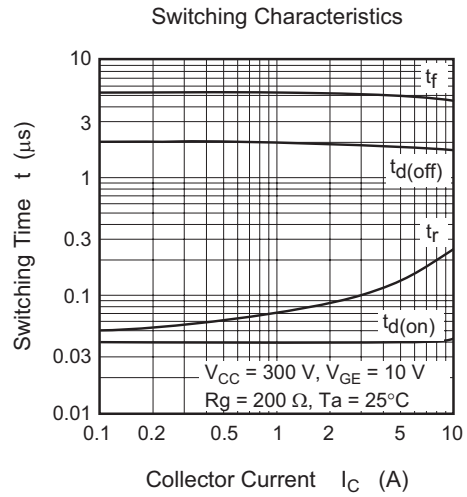
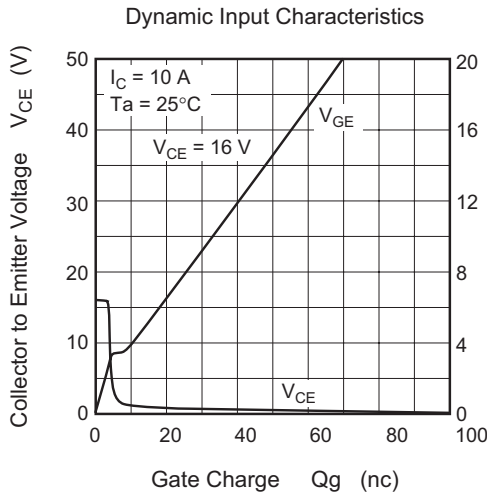
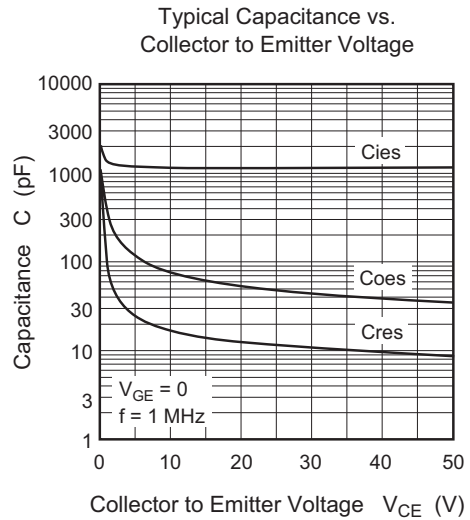
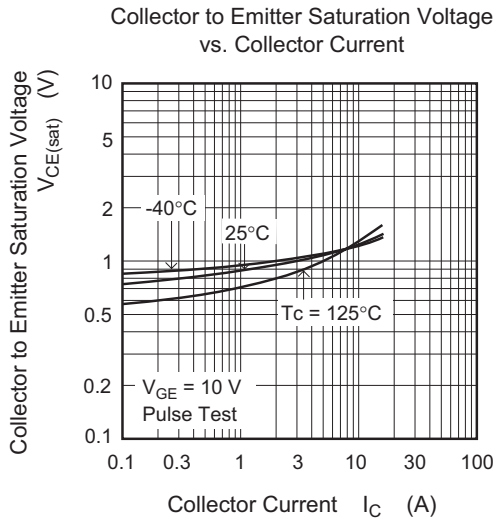
Electrical Characteristics

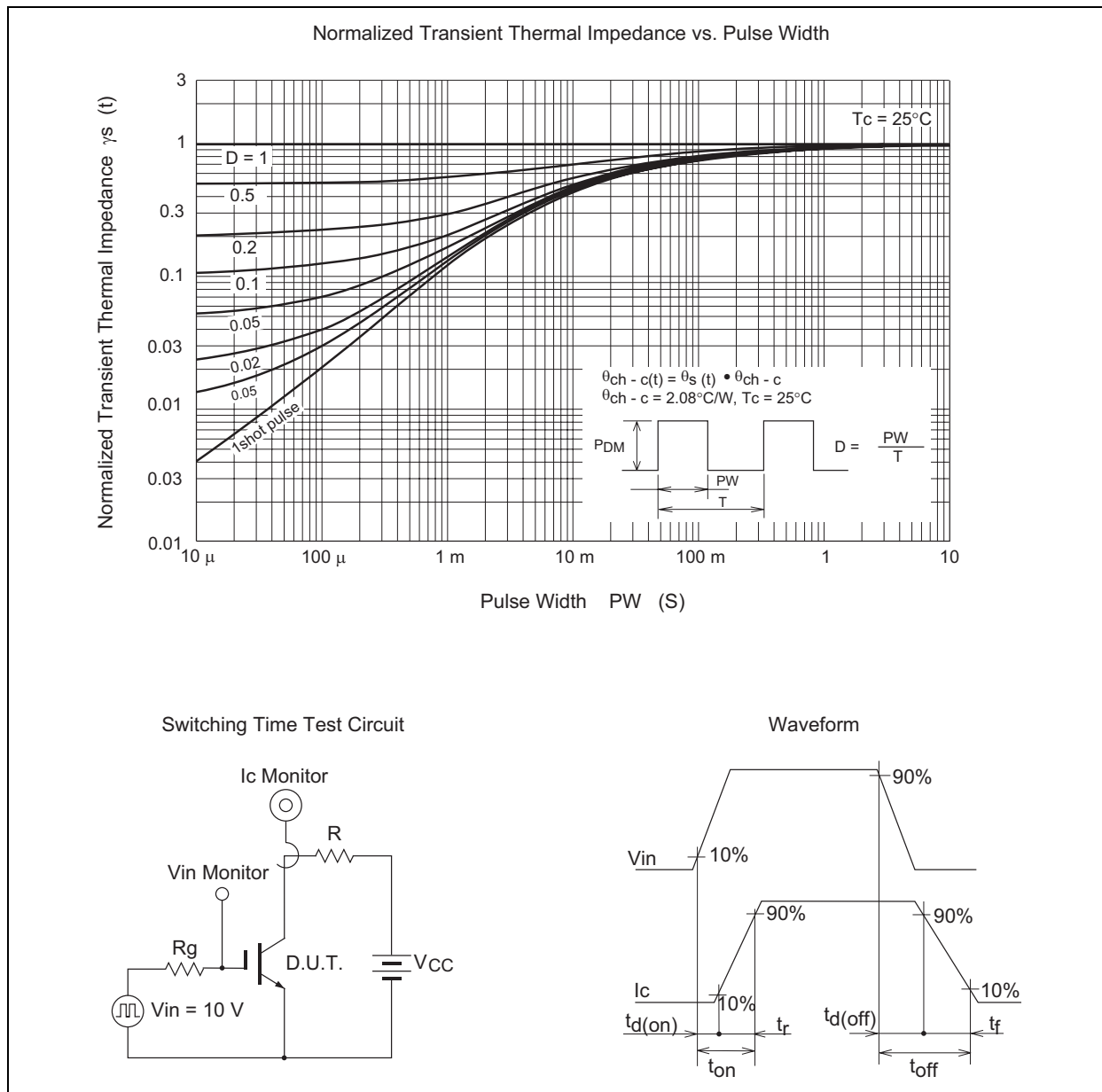
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to Emitter breakdown voltage	$V_{(BR)CES}$	370	400	430	V	$I_C = 2 \text{ mA}$, $V_{GE} = 0 \text{ V}$
Gate to Emitter breakdown voltage	$V_{(BR)GES}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{CE} = 0 \text{ V}$
Collector cutoff current	I_{CES}	—	—	100	μA	$V_{CE} = 300 \text{ V}$, $V_{GE} = 0 \text{ V}$
Gate cutoff current	I_{GES}	—	—	± 100	μA	$V_{GE} = \pm 20 \text{ V}$, $V_{CE} = 0 \text{ V}$
Collector to emitter saturation voltage	$V_{CE(sat)1}$	—	1.4	1.7	V	$I_C = 8 \text{ A}$, $V_{GE} = 10 \text{ V}$
Collector to emitter saturation voltage	$V_{CE(sat)2}$	—	1.6	2.2	V	$I_C = 8 \text{ A}$, $V_{GE} = 4 \text{ V}$
Gate to emitter cutoff voltage	$V_{GE(off)}$	1.3	—	2.2	V	$I_C = 1 \text{ mA}$, $V_{CE} = 10 \text{ V}$
Turn-on delay time	$t_{d(on)}$	—	0.2	—	μs	$V_{CE} = 300 \text{ V}$, $R_L = 50 \text{ }\Omega$, $V_{GE} = 5 \text{ V}$, $R_G = 200 \text{ }\Omega$
Rise time	t_r	—	0.4	—	μs	
Turn-off delay time	$t_{d(off)}$	—	1.0	—	μs	
Fall time	t_f	—	5	—	μs	
Input capacitance	C_{iss}	—	1110	—	pF	$V_{CE} = 10 \text{ V}$, $V_{GE} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	75	—	pF	
Reveres transfer capacitance	C_{res}	—	18	—	pF	
Secondary breakdown energy	E_s/b	230	—	—	mJ	$L = 5 \text{ mH}$

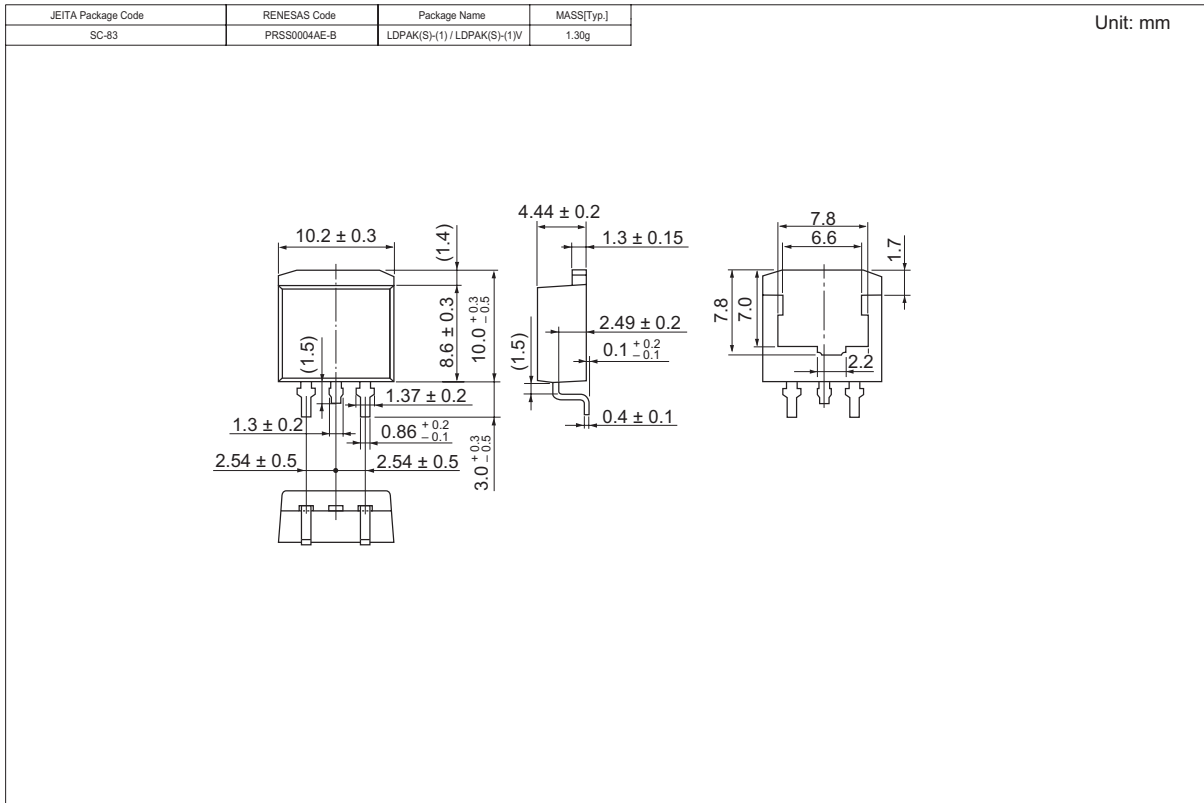
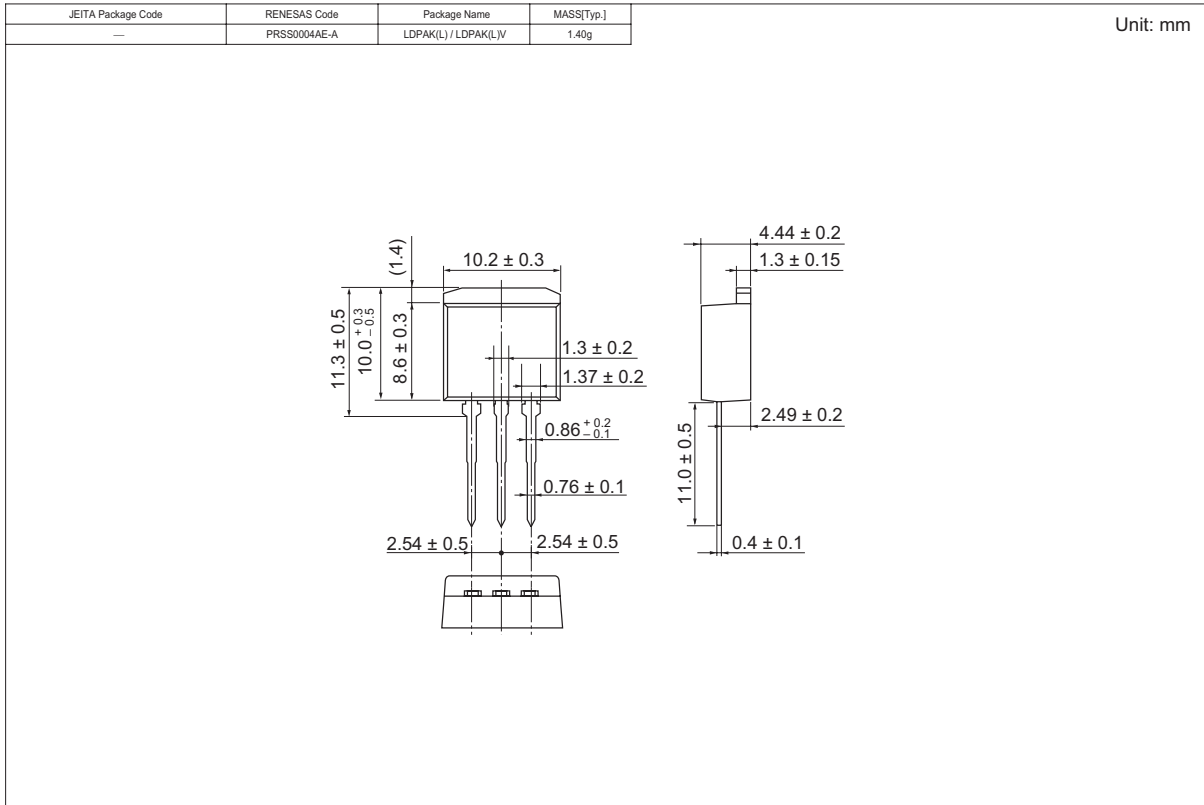
Main Characteristics







Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
GN4014ZB4LD	50 pcs.	Sack
GN4014ZB4LS	1000 pcs.	Taping
GN4014ZB4LM	1000 pcs.	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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RENESAS Technology Taiwan Co., Ltd.

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Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
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RENESAS Technology Singapore Pte. Ltd.

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Tel: <82> 2-796-3115, Fax: <82> 2-796-2145

RENESAS Technology Malaysia Sdn. Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510