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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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RJH60D1DPE

Silicon N Channel IGBT
Application: Inverter

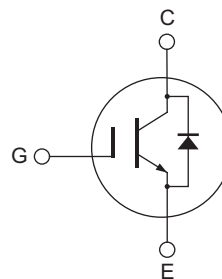
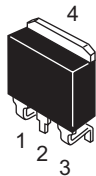
REJ03G1840-0100
Rev.1.00
Oct 14, 2009

Features

- High breakdown-voltage
- Low on-voltage
- Built-in diode

Outline

RENESAS Package code: PRSS0004AE-B
(Package name: LDKPAK (S)-(1))



1. Gate
2. Collector
3. Emitter
4. Collector

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit	
Collector to emitter voltage / diode reverse voltage	V_{CES} / V_R	600	V	
Gate to emitter voltage	V_{GES}	±30	V	
Collector current	$T_C = 25^\circ\text{C}$	I_C	16	A
	$T_C = 100^\circ\text{C}$	I_C	8	A
Collector peak current	$i_{c(\text{peak})}$ ^{Note1}	32	A	
Collector to emitter diode forward current	i_{DF}	8	A	
Collector to Emitter diode forward peak current	$i_{DF(\text{peak})}$ ^{Note1}	32	A	
Collector dissipation	P_C ^{Note2}	70	W	
Junction to case thermal impedance	θ_{j-c} ^{Note2}	1.79	°C/W	
Junction temperature	T_j	150	°C	
Storage temperature	T_{stg}	-55 to +150	°C	

- Notes: 1. $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$
2. Value at $T_C = 25^\circ\text{C}$

Electrical Characteristics

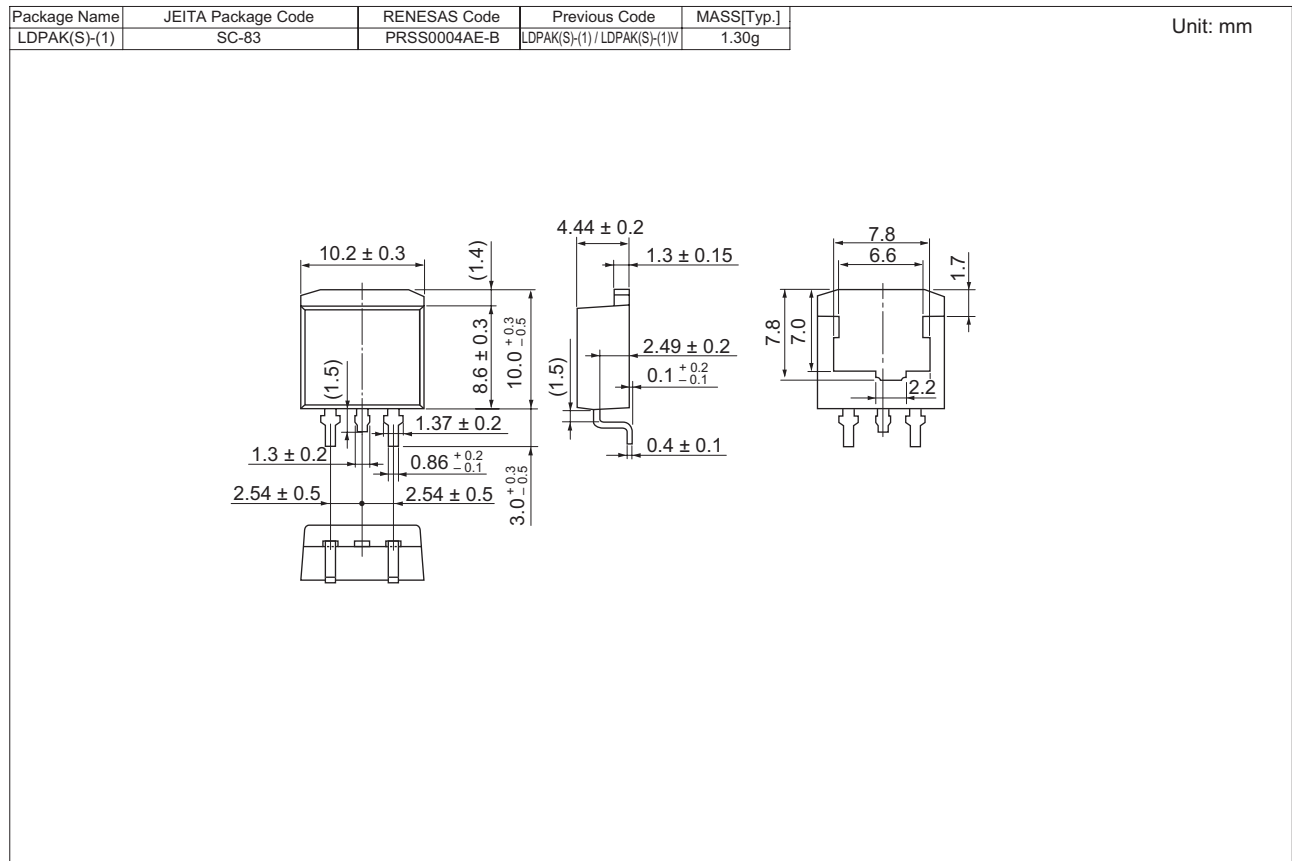
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current / Diode reverse current	I_{CES} / I_R	—	—	100	μA	$V_{CE} = 600 \text{ V}, V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30 \text{ V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	4.0	—	6.0	V	$V_{CE} = 10 \text{ V}, I_C = 1 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.8	2.2	V	$I_C = 8 \text{ A}, V_{GE} = 15 \text{ V}^{\text{Note3}}$
	$V_{CE(sat)}$	—	2.3	—	V	$I_C = 16 \text{ A}, V_{GE} = 15 \text{ V}^{\text{Note3}}$
Input capacitance	C_{ies}	—	290	—	pF	$V_{CE} = 25 \text{ V}$
Output capacitance	C_{oes}	—	25	—	pF	$V_{GE} = 0$
Reveres transfer capacitance	C_{res}	—	7.5	—	pF	$f = 1 \text{ MHz}$
Total gate charge	Q_g	—	12.0	—	nC	$V_{GE} = 15 \text{ V}$
Gate to emitter charge	Q_{ge}	—	2.0	—	nC	$V_{CE} = 300 \text{ V}$
Gate to collector charge	Q_{gc}	—	6.0	—	nC	$I_C = 8 \text{ A}$
Switching time	$t_{d(on)}$	—	25	—	ns	$I_C = 8 \text{ A}$
	t_r	—	35	—	ns	$R_L = 37.5 \Omega$
	$t_{d(off)}$	—	40	—	ns	$V_{GE} = 15 \text{ V}$
	t_f	—	100	—	ns	$R_g = 5 \Omega$
FRD forward voltage	V_F	—	1.8	2.3	V	$I_F = 8 \text{ A}^{\text{Note3}}$
FRD reverse recovery time	t_{rr}	—	100	—	ns	$I_F = 8 \text{ A}$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 3. Pulse test.

4. Under development. –The specification potentially be changed without notice.

Package Dimension



Ordering Information

Part No.	Quantity	Shipping Container
RJH60D1DPE-00-J3	1000 pcs	Taping

Notes:

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