

RJP30H1DPD

Silicon N Channel IGBT
High speed power switching

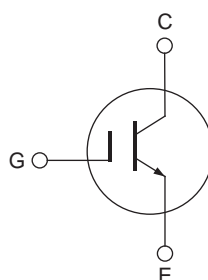
R07DS0465EJ0200
Rev.2.00
Jun 15, 2011

Features

- Trench gate and thin wafer technology (G6H-II series)
- High speed switching: $t_r = 80$ ns typ., $t_f = 150$ ns typ.
- Low collector to emitter saturation voltage: $V_{CE(sat)} = 1.5$ V typ.
- Low leak current: $I_{CES} = 1$ μ A max.

Outline

RENESAS Package code: PRSS0004ZJ-A
(Package name : TO-252)



1. Gate
2. Collector
3. Emitter
4. Collector (Flange)

Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Collector to emitter voltage	V_{CES}	360	V
Gate to emitter voltage	V_{GES}	± 30	V
Collector current	I_c	30	A
Collector peak current	$i_{c(peak)}$ ^{Note1}	200	A
Collector dissipation	P_c ^{Note2}	40	W
Junction to case thermal impedance	θ_{j-c}	3.13	$^\circ\text{C}/\text{W}$
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes: 1. $PW \leq 10$ μ s, duty cycle $\leq 1\%$
2. $T_c = 25^\circ\text{C}$

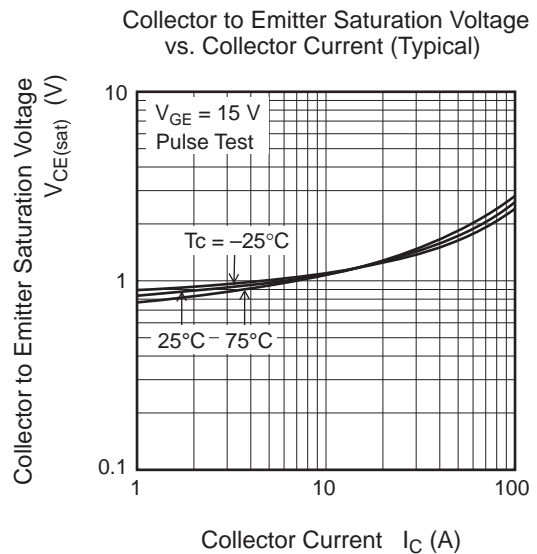
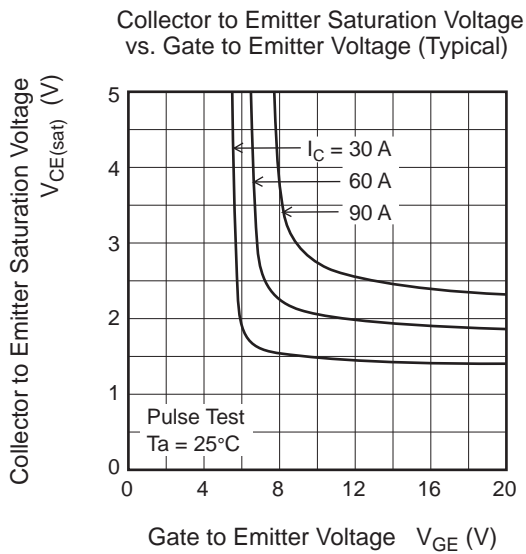
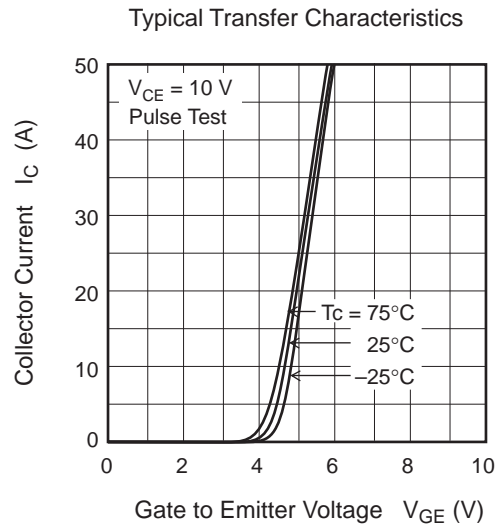
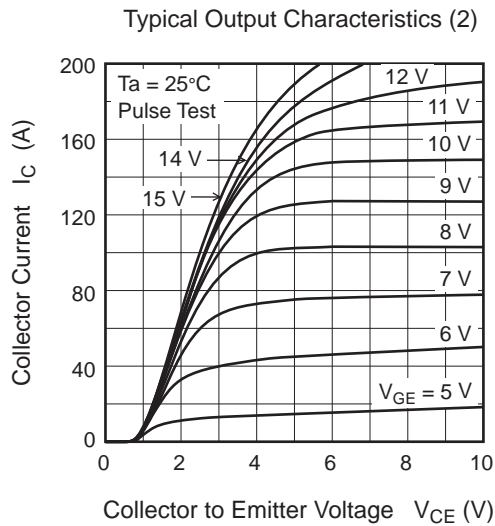
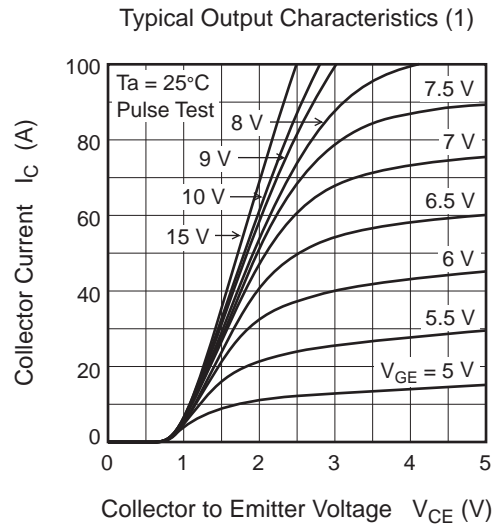
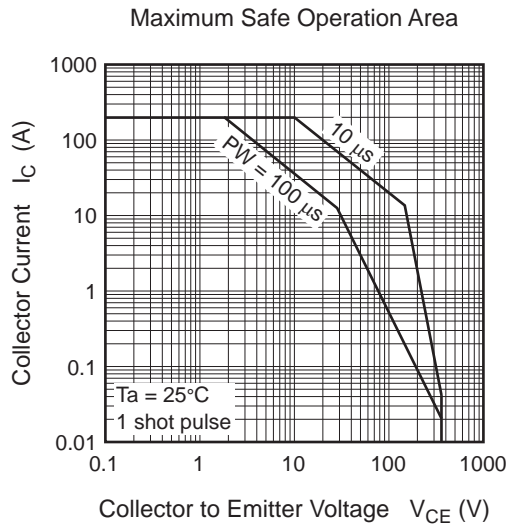
Electrical Characteristics

(T_j = 25°C)

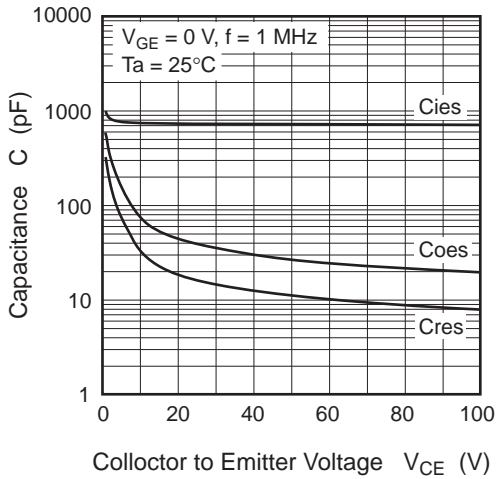
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I _{CEs}	—	—	1	μA	V _{CE} = 360 V, V _{GE} = 0
Gate to emitter leak current	I _{GES}	—	—	±100	nA	V _{GE} = ± 30 V, V _{CE} = 0
Gate to emitter cutoff voltage	V _{GE(off)}	2.5	—	5	V	V _{CE} = 10 V, I _C = 1 mA
Collector to emitter saturation voltage	V _{CE(sat)}	—	1.5	2	V	I _C = 30A, V _{GE} = 15 V ^{Note3}
Input capacitance	C _{ies}	—	740	—	pF	V _{CE} = 25 V V _{GE} = 0 f = 1 MHz
Output capacitance	C _{oes}	—	40	—	pF	
Reveres transfer capacitance	C _{res}	—	17	—	pF	
Total gate charge	Q _g	—	23	—	nC	V _{GE} = 15 V V _{CE} = 150 V I _C = 30 A
Gate to emitter charge	Q _{ge}	—	4	—	nC	
Gate to collector charge	Q _{gc}	—	8	—	nC	
Switching time	t _{d(on)}	—	0.02	—	μs	I _C = 30 A R _L = 5 Ω
	t _r	—	0.08	—	μs	
	t _{d(off)}	—	0.04	—	μs	V _{GE} = 15 V R _G = 5 Ω
	t _f	—	0.15	—	μs	

Notes: 3. Pulse test

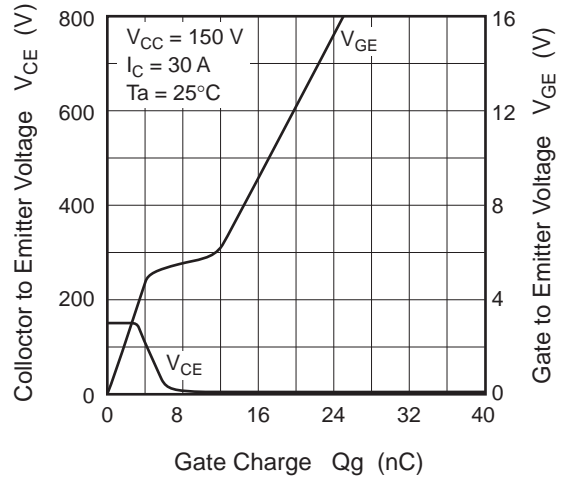
Main Characteristics



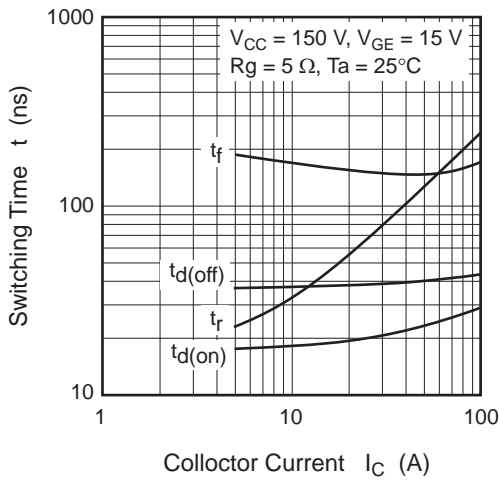
Typical Capacitance vs. Collector to Emitter Voltage



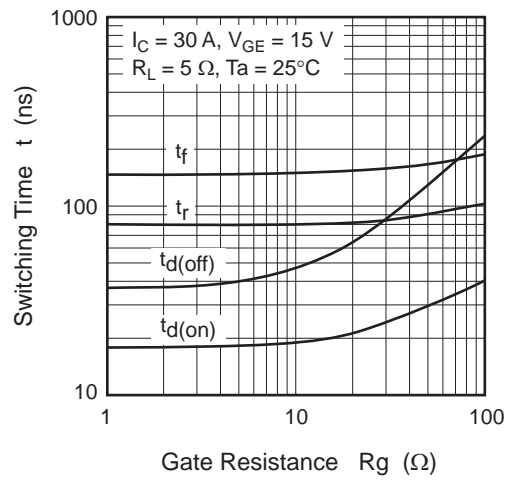
Dynamic Input Characteristics (Typical)



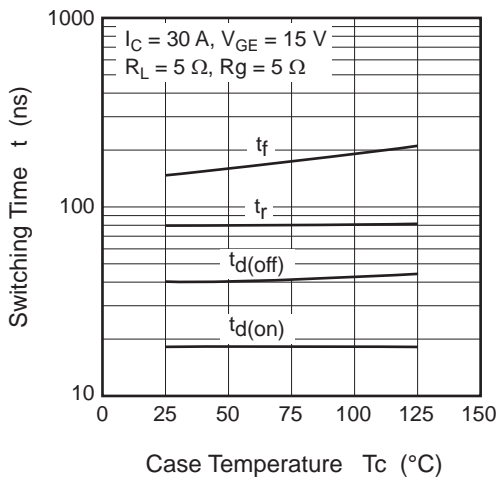
Switching Characteristics (Typical) (1)



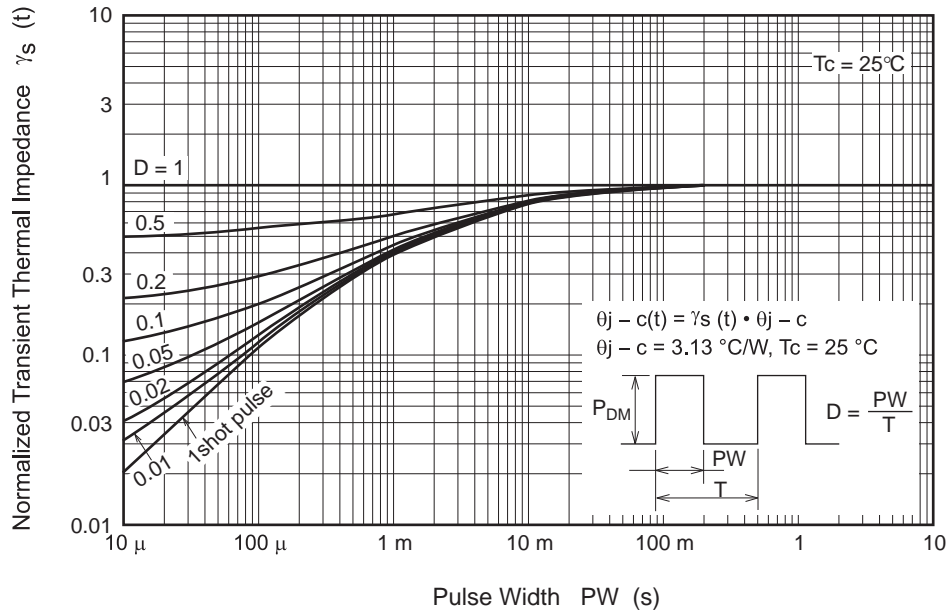
Switching Characteristics (Typical) (2)



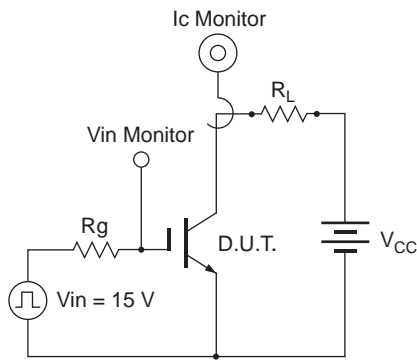
Switching Characteristics (Typical) (3)



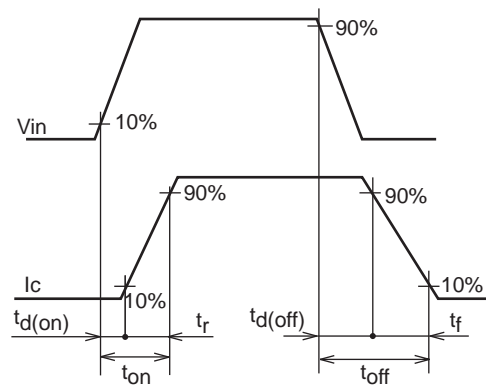
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



Waveform



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
TO-252	—	PRSS0004ZJ-A	—	0.319g	

The drawing shows the following dimensions for the RJP30H1DPD package:

- Front View:**
 - Total height: 1.5 ± 0.5
 - Height of the main body: 5.5 ± 0.5
 - Width of the main body: 6.5 ± 0.3 (overall), (5.6 ± 0.5) (inner)
 - Lead height from body: 1.2 Max
 - Lead width: (1.2)
 - Lead spacing: 0.8 ± 0.1
 - Lead length: 2.29 ± 0.5 (each side)
- Side View:**
 - Lead height: 2.3 ± 0.2
 - Lead width: 0.55 ± 0.1
 - Lead thickness: 0.25 Max
 - Lead length: 0.55 ± 0.1
- Top View:**
 - Width: (5.1)
 - Height: (5.1)

Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJP30H1DPD-00-J2	3000 pcs	Taping

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