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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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RJP6085DPN

Silicon N Channel IGBT
High Speed Power Switching

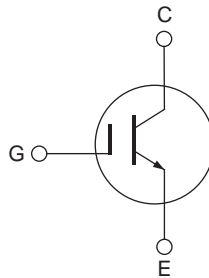
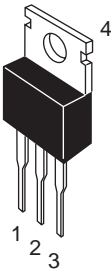
REJ03G1863-0100
Rev.1.00
Nov 09, 2009

Features

- High speed switching
- Low collector to emitter saturation voltage

Outline

RENESAS Package code: PRSS0004AC-A)
(Package name: TO-220AB)



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

Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Collector to Emitter voltage	V_{CES}	600	V
Gate to Emitter voltage	V_{GES}	± 30	V
Collector current	I_C	40	A
Collector peak current	$I_{C(\text{peak})}$ ^{Note1}	80	A
Collector dissipation	P_C ^{Note2}	178.5	W
Junction to case thermal impedance	θ_{j-c} ^{Note2}	0.7	$^\circ\text{C}/\text{W}$
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

- Notes: 1. Pulse width limited by safe operating area.
2. Value at $T_c = 25^\circ\text{C}$

Electrical Characteristics

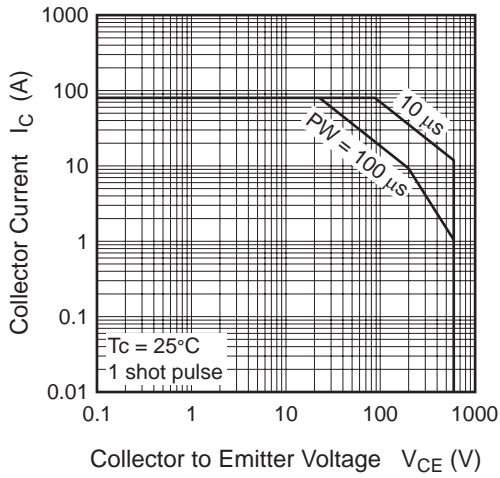
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	10	μA	$V_{CE} = 600\text{V}, V_{GE} = 0\text{V}$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30\text{V}, V_{CE} = 0\text{V}$
Gate to emitter cutoff voltage	$V_{GE(off)}$	4	—	6	V	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	2.65	3.5	V	$I_C = 40\text{A}, V_{GE} = 15\text{V}$ ^{Note3}
Input capacitance	C_{ies}	—	1150	—	pF	$V_{CE} = 25\text{V}$
Output capacitance	C_{oes}	—	105	—	pF	$V_{GE} = 0\text{V}$
Reveres transfer capacitance	C_{res}	—	12	—	pF	$f = 1\text{MHz}$
Switching time	$t_{d(on)}$	—	30	—	ns	$I_C = 40\text{A}, \text{Resistive Load}$
	t_r	—	60	—	ns	$V_{CC} = 300\text{V}$
	$t_{d(off)}$	—	60	—	ns	$V_{GE} = 15\text{V}$
	t_f	—	40	—	ns	$R_g = 5\ \Omega$

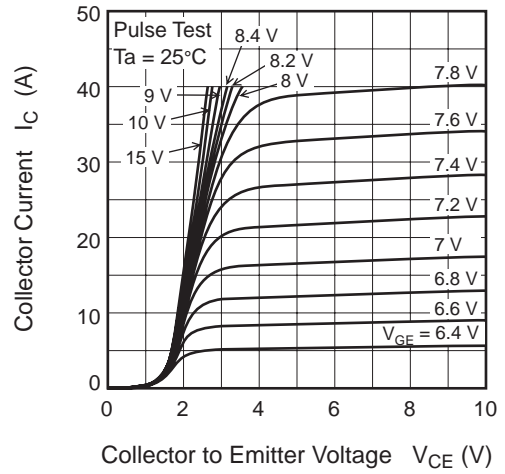
Notes: 3. Pulse test

Main Characteristics

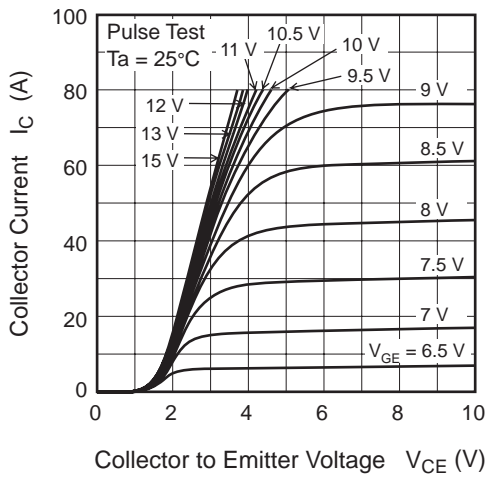
Maximum Safe Operation Area



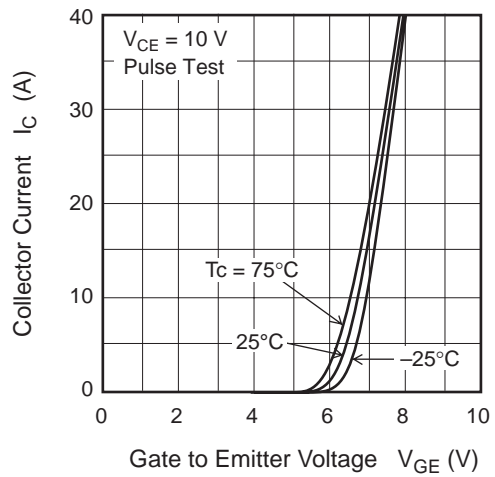
Typical Output Characteristics (1)



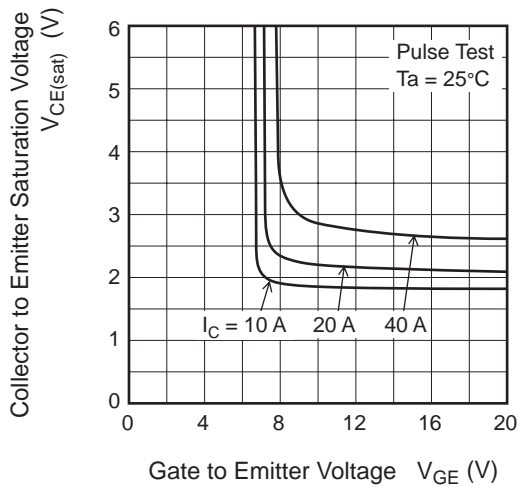
Typical Output Characteristics (2)



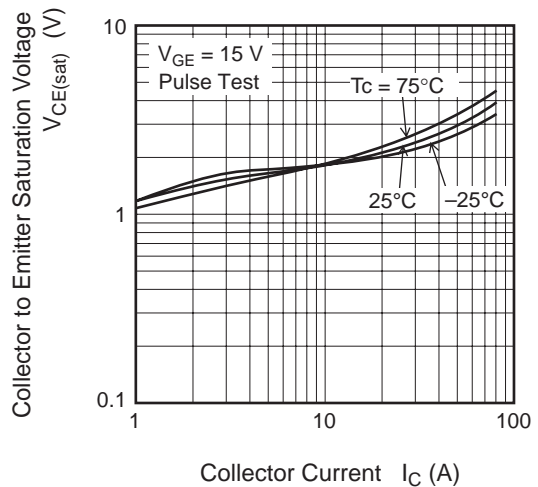
Typical Transfer Characteristics



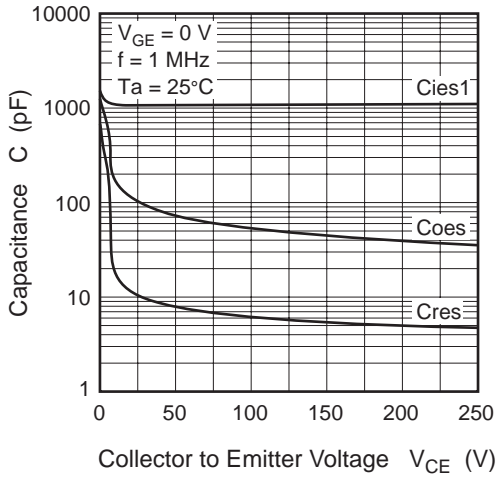
Collector to Emitter Saturation Voltage vs. Gate to Emitter Voltage (Typical)



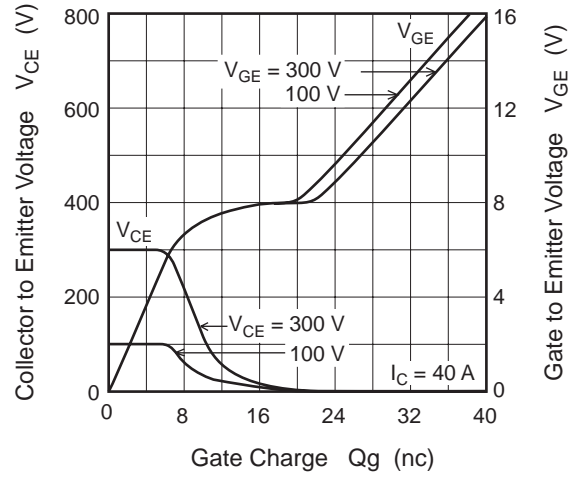
Collector to Emitter Saturation Voltage vs. Collector Current (Typical)



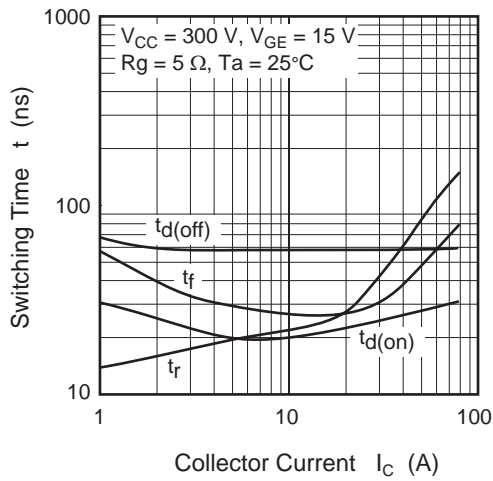
Typical Capacitance vs. Collector to Emitter Voltage



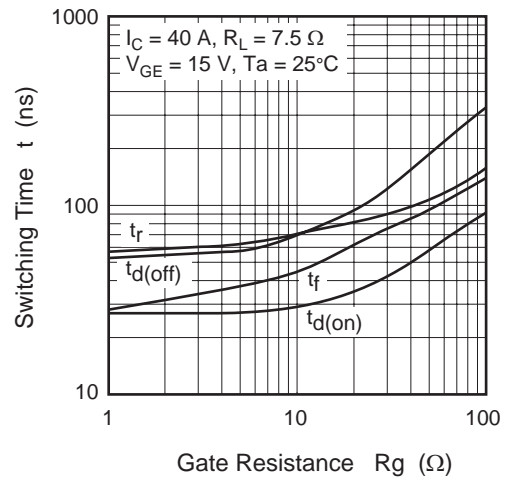
Dynamic Input Characteristics (Typical)



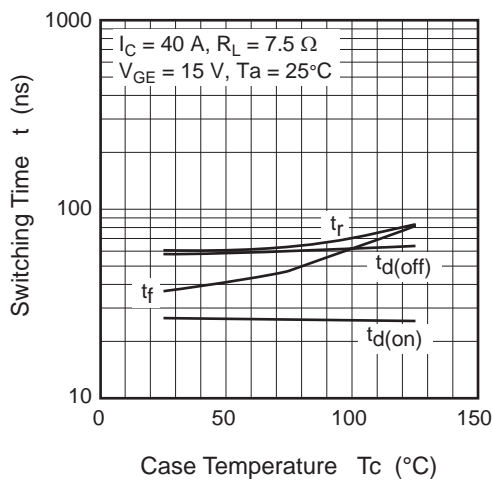
Switching Characteristics (Typical) (1)



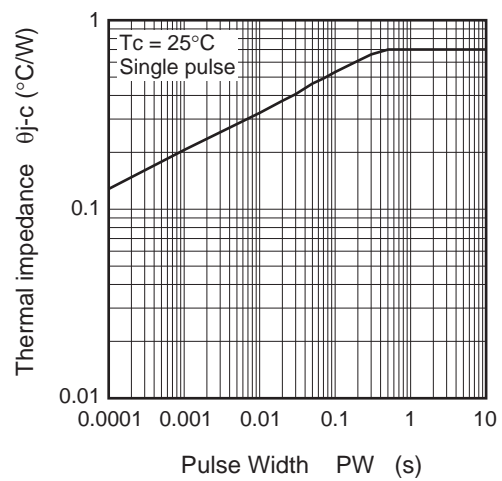
Switching Characteristics (Typical) (2)



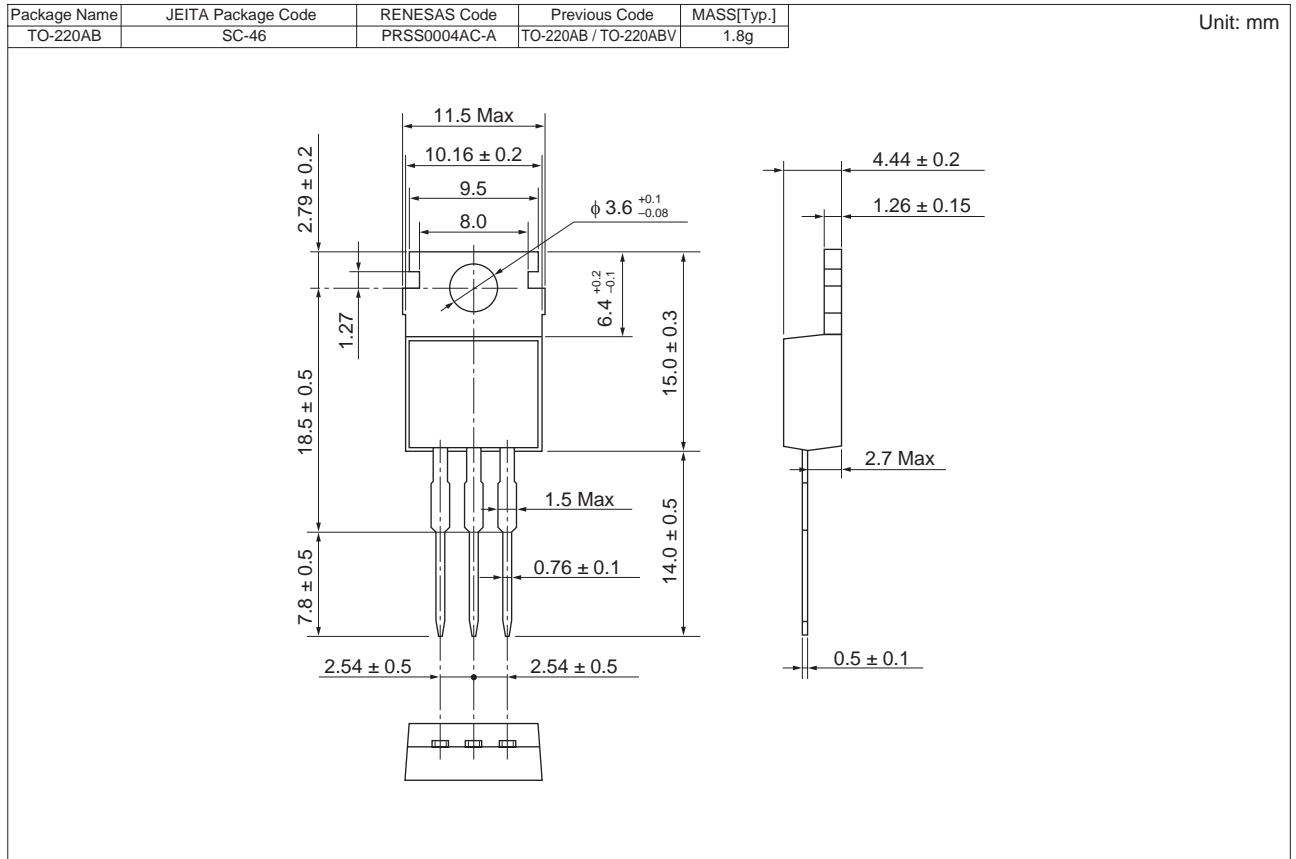
Switching Characteristics (Typical) (3)



Transient Thermal Impedance vs. Pulse Width



Package Dimensions



Ordering Information

Part No.	Quantity	Shipping Container
RJP6085DPN-00-T2	600 pcs	Box (Tube)

Notes:

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