

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# RJP6085DPN

Silicon N Channel IGBT  
High Speed Power Switching

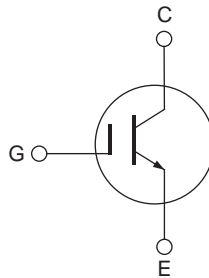
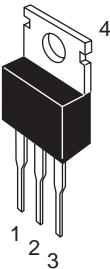
REJ03G1863-0100  
Rev.1.00  
Nov 09, 2009

## 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	$V_{GES}$	$\pm 30$	V
Collector current	$I_C$	40	A
Collector peak current	$I_{C(\text{peak})}$ <sup>Note1</sup>	80	A
Collector dissipation	$P_C$ <sup>Note2</sup>	178.5	W
Junction to case thermal impedance	$\theta_{j-c}$ <sup>Note2</sup>	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

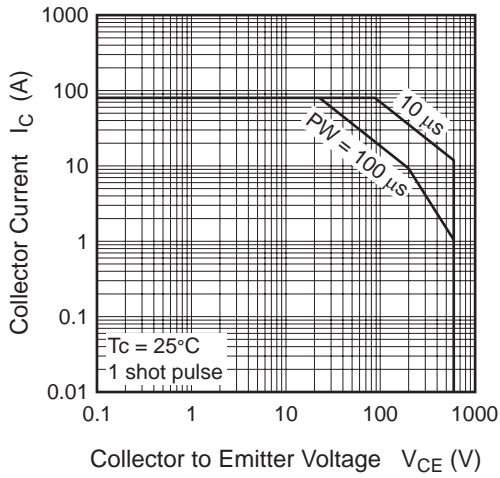
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	$I_{CES}$	—	—	10	$\mu\text{A}$	$V_{CE} = 600\text{V}, V_{GE} = 0\text{V}$
Gate to emitter leak current	$I_{GES}$	—	—	$\pm 1$	$\mu\text{A}$	$V_{GE} = \pm 30\text{V}, V_{CE} = 0\text{V}$
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	$I_C = 40\text{A}, V_{GE} = 15\text{V}$ <sup>Note3</sup>
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	$R_g = 5\ \Omega$

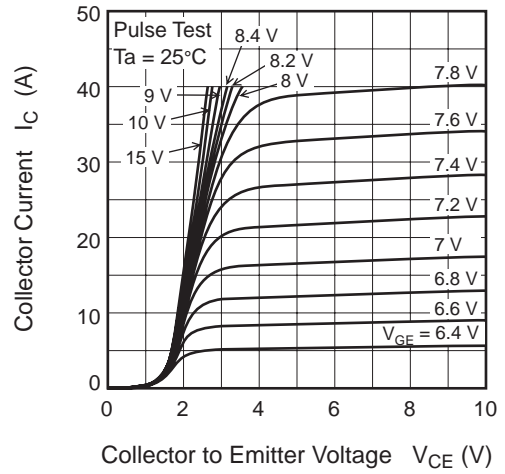
Notes: 3. Pulse test

Main Characteristics

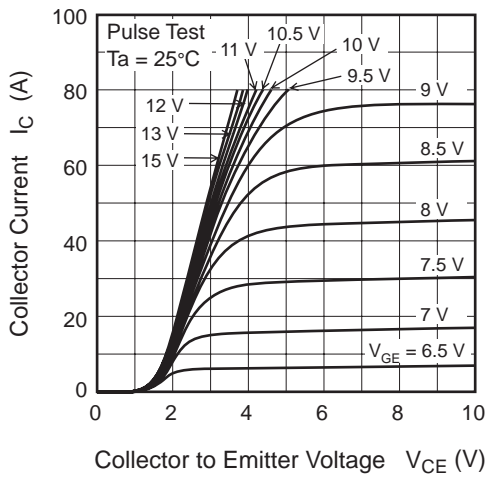
Maximum Safe Operation Area



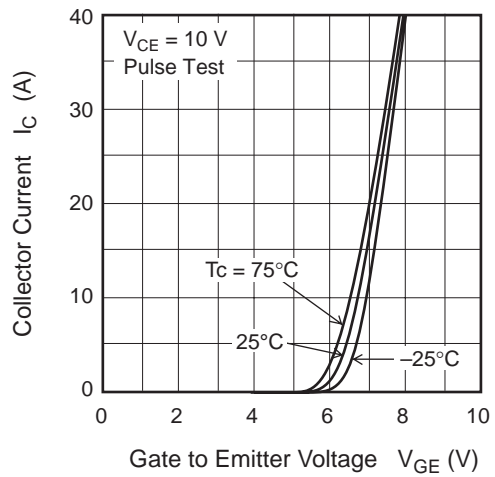
Typical Output Characteristics (1)



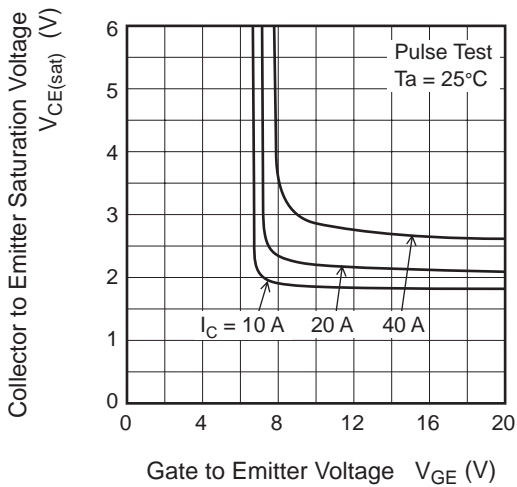
Typical Output Characteristics (2)



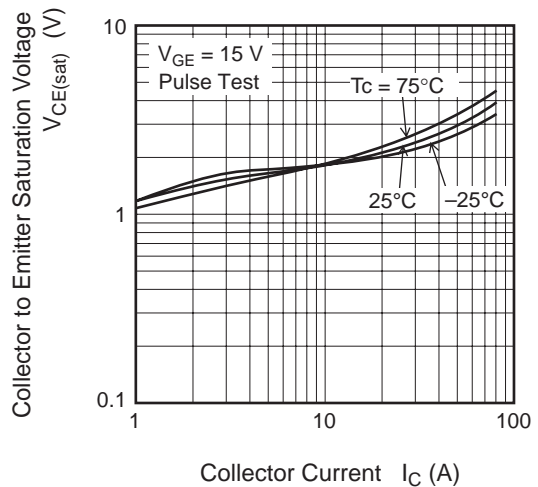
Typical Transfer Characteristics



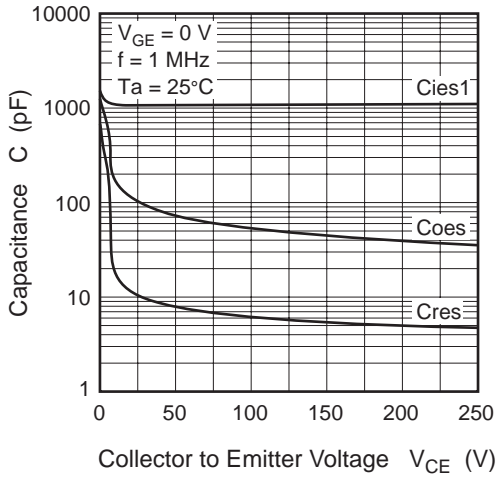
Collector to Emitter Saturation Voltage vs. Gate to Emitter Voltage (Typical)



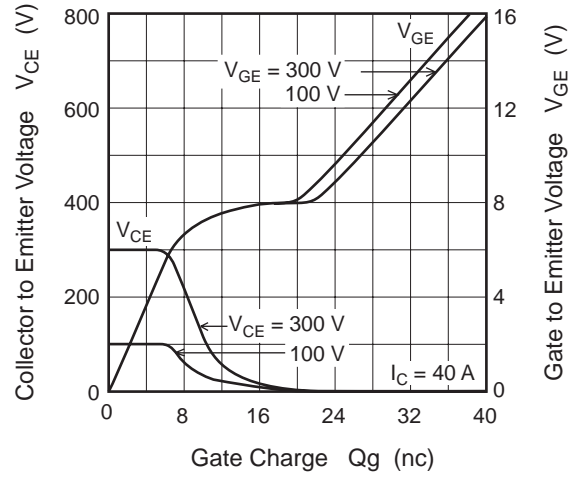
Collector to Emitter Saturation Voltage vs. Collector Current (Typical)



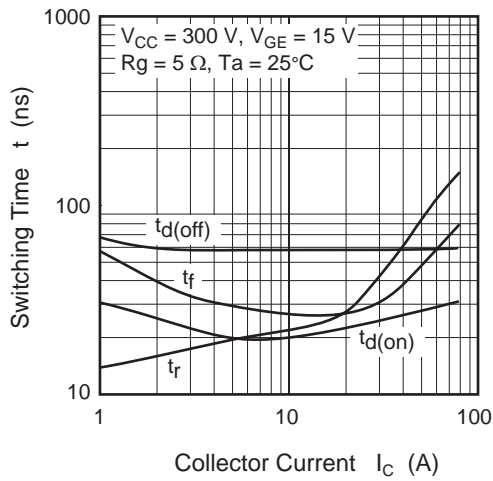
Typical Capacitance vs. Collector to Emitter Voltage



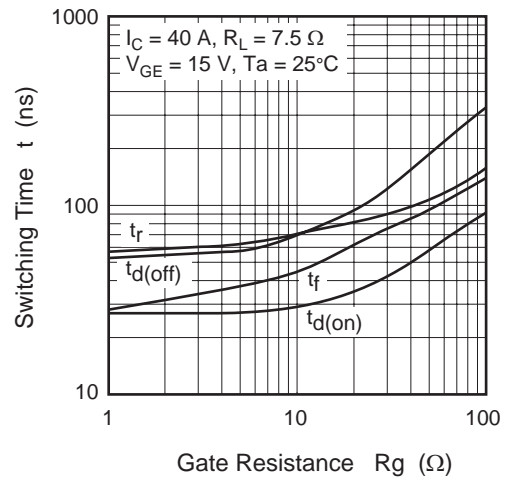
Dynamic Input Characteristics (Typical)



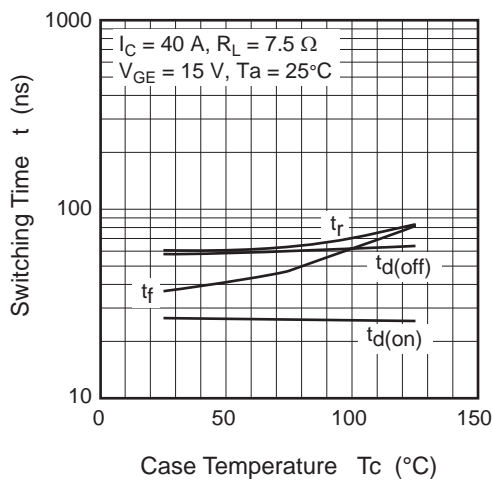
Switching Characteristics (Typical) (1)



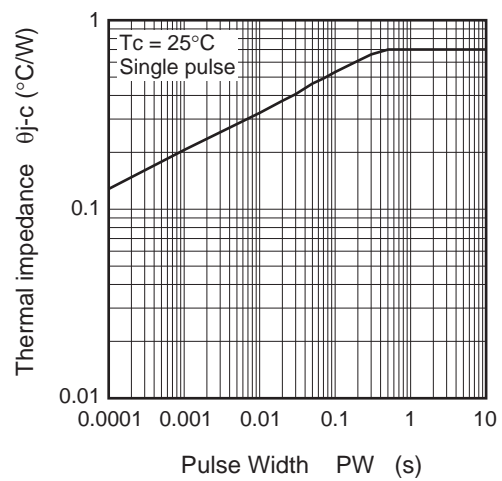
Switching Characteristics (Typical) (2)



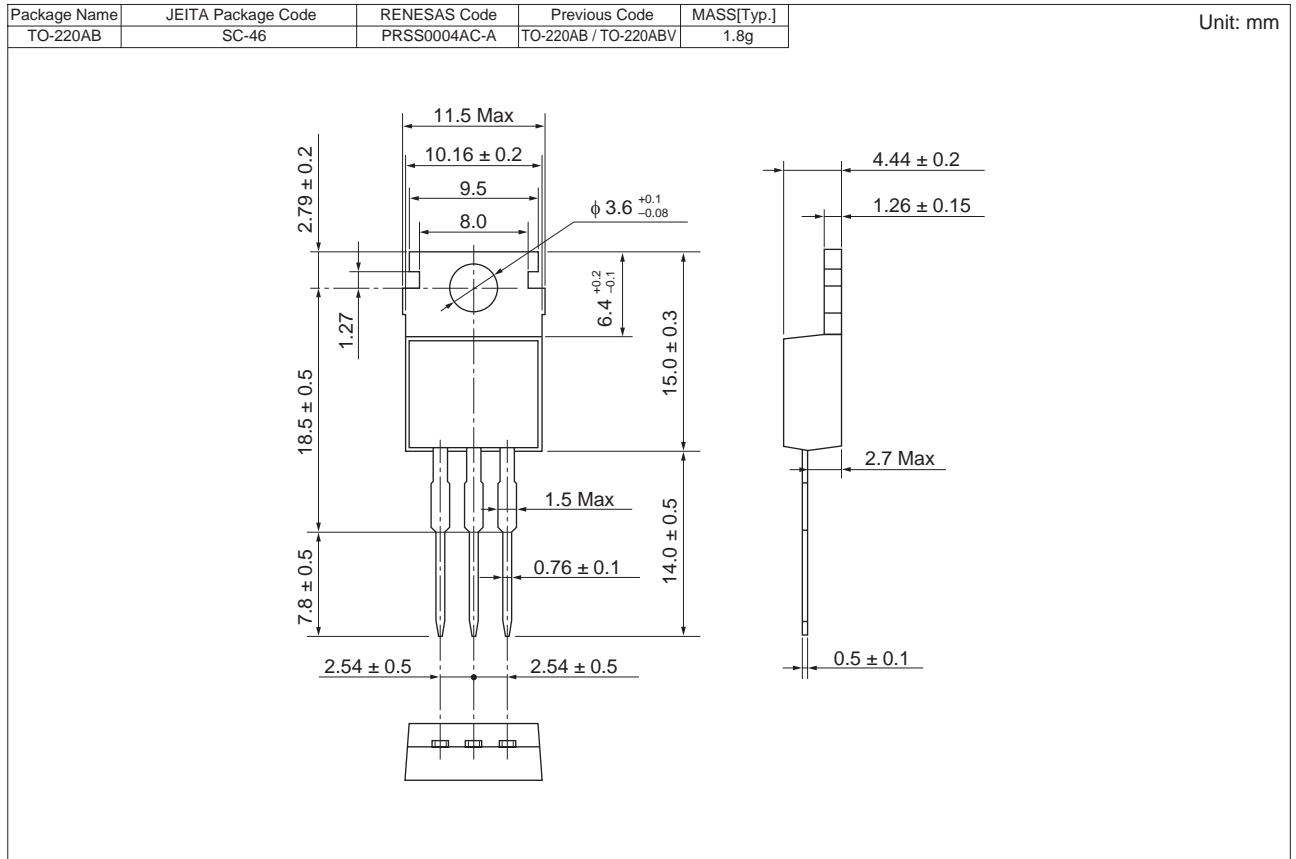
Switching Characteristics (Typical) (3)



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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