RJP60F0DPE

600 V - 25 A - IGBT
High Speed Power Switching

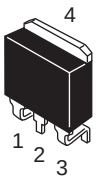
R07DS0540EJ0100
Rev.1.00
Sep 09, 2011

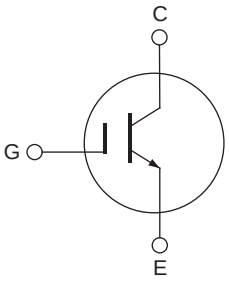
Features

- Low collector to emitter saturation voltage
  $V_{CE(sat)}$ = 1.4 V typ. (at I_C = 25 A, V_{GE} = 15V, Ta = 25°C)
- Trench gate and thin wafer technology
- High speed switching
  t_f = 90 ns typ. (at I_C = 30 A, V_{CE} = 400 V, V_{GE} = 15 V, Rg = 5 Ω, Ta = 25°C, inductive load)

Outline

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





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

Absolute Maximum Ratings

(Tc = 25°C)

Item		Symbol	Ratings	Unit
Collector to emitter voltage		V_{CES}	600	V
Gate to emitter voltage		V_{GES}	±30	V
Collector current	Tc = 25 °C	I_C Note1	50	A
	Tc = 100°C	I_C Note1	25	A
Collector peak current		ic(peak) Note1	100	A
Collector dissipation		P_C	122	W
Junction to case thermal impedance		θj-c	1.02	°C/W
Channel temperature		Tj	150	°C
Storage temperature		Tstg	–55 to +150	°C

Notes: 1. Pulse width limited by safe operating area.

Electrical Characteristics

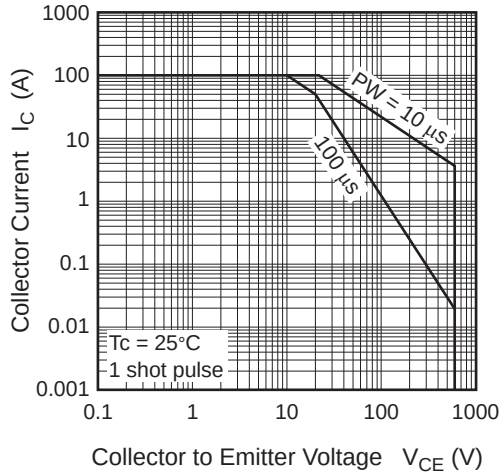
(Tj = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	100	μA	V_{CE} = 600V, V_{GE} = 0
Gate to emitter leak current	I_{GES}	—	—	±1	μA	V_{GE} = ±30 V, V_{CE} = 0
Gate to emitter cutoff voltage	$V_{GE(off)}$	4	—	8	V	V_{CE} = 10V, I_C = 1 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.4	1.82	V	I_C = 25 A, V_{GE} = 15V Note2
		—	1.7	—	V	I_C = 50 A, V_{GE} = 15V Note2
Input capacitance	Cies	—	1550	—	pF	V_{CE} = 25 V V_{GE} = 0 V f = 1 MHz
Output capacitance	Coes	—	82	—	pF	
Reverse transfer capacitance	Cres	—	26	—	pF	
Switching time	$t_{d(on)}$	—	46	—	ns	I_C = 30 A, V_{CE} = 400 V V_{GE} = 15 V, Rg = 5 Ω Note2 Inductive load Diode clamp: RJH60F0DPK
	t_r	—	92	—	ns	
	$t_{d(off)}$	—	70	—	ns	
	t_f	—	90	—	ns	

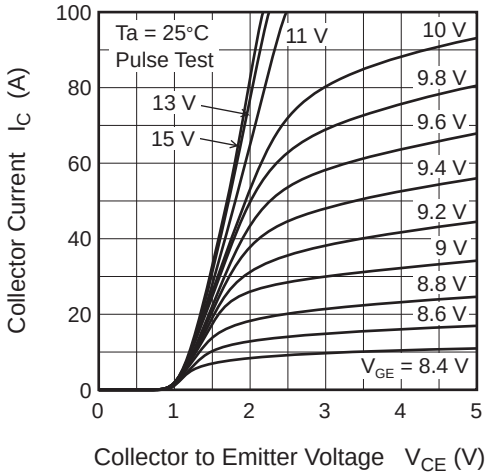
Notes: 2. Pulse test

Main Characteristics

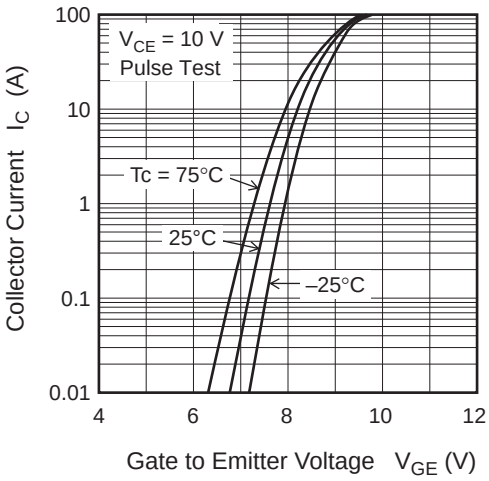
Maximum Safe Operation Area



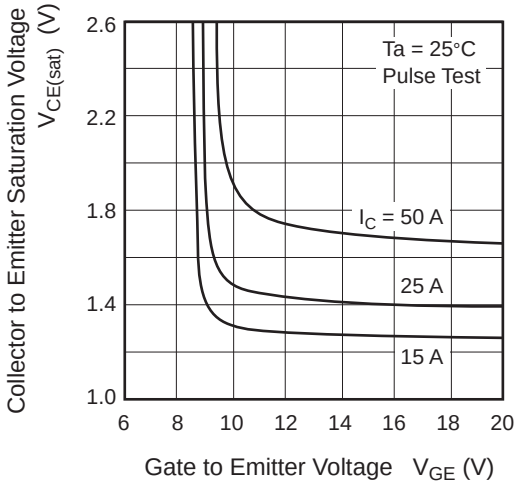
Typical Output Characteristics



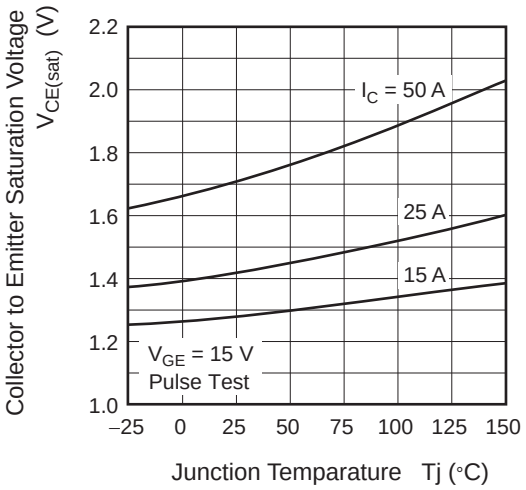
Typical Transfer Characteristics



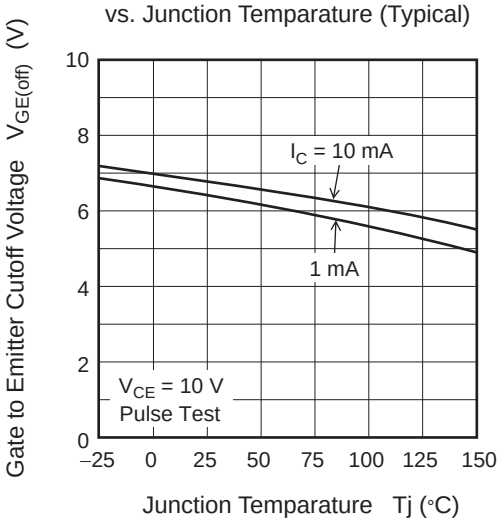
Collector to Emitter Saturation Voltage vs. Gate to Emitter Voltage (Typical)



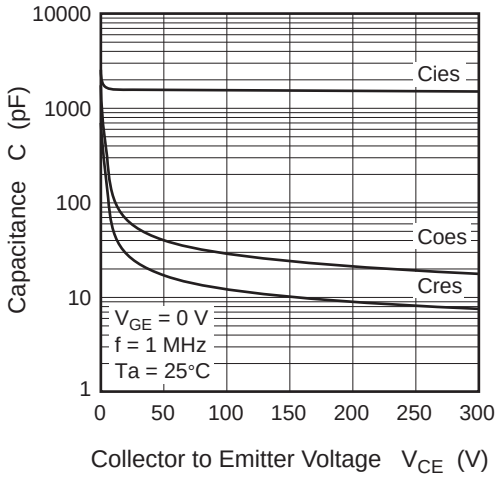
Collector to Emitter Saturation Voltage vs. Junction Temparature (Typical)



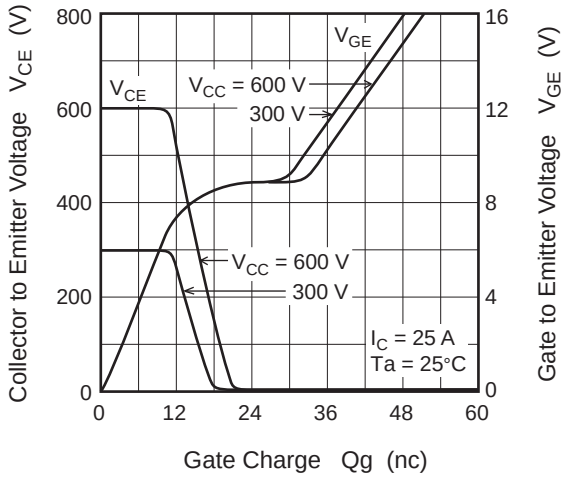
Gate to Emitter Cutoff Voltage vs. Junction Temparature (Typical)



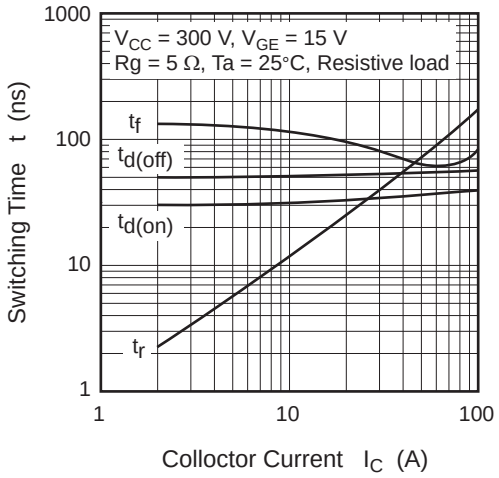
Typical Capacitance vs.
Collector to Emitter Voltage



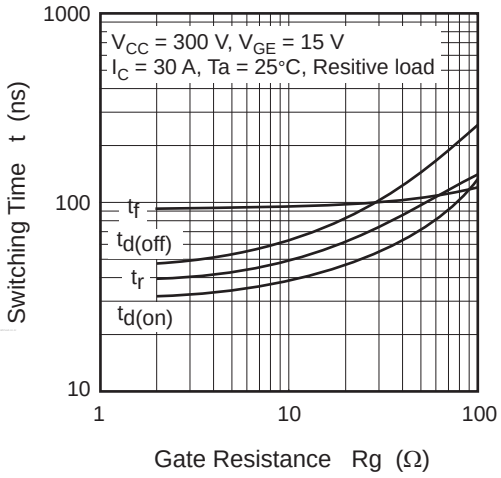
Dynamic Input Characteristics (Typical)



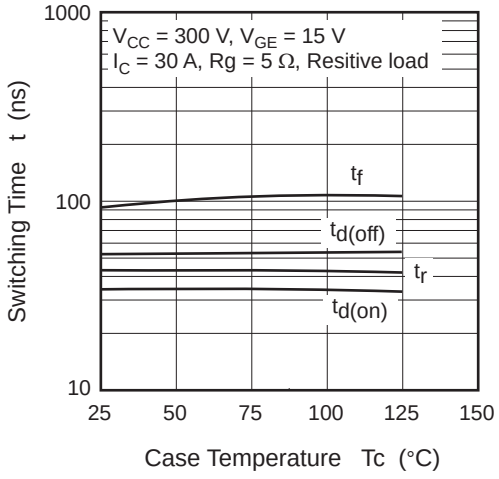
Switching Characteristics (Typical) (1)



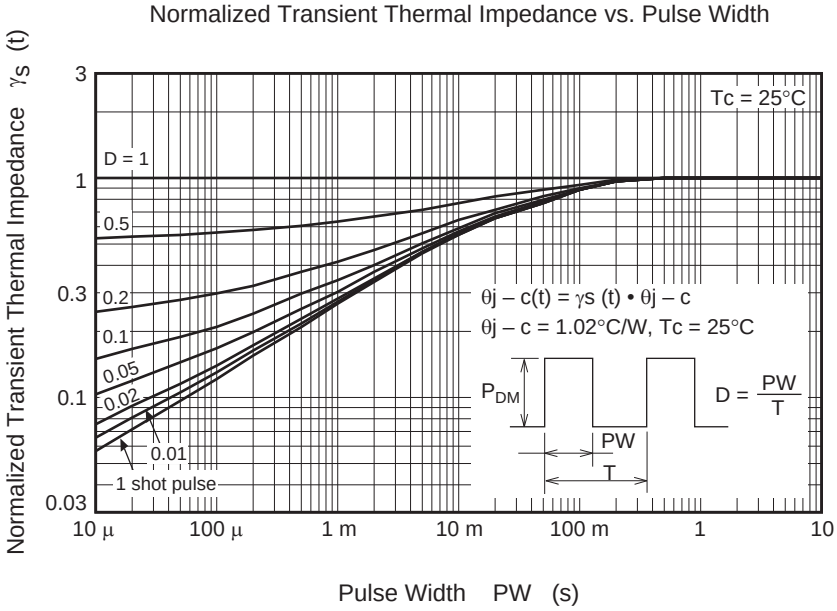
Switching Characteristics (Typical) (2)



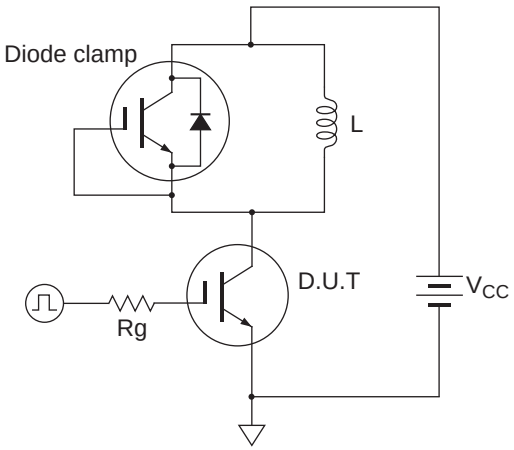
Switching Characteristics (Typical) (3)



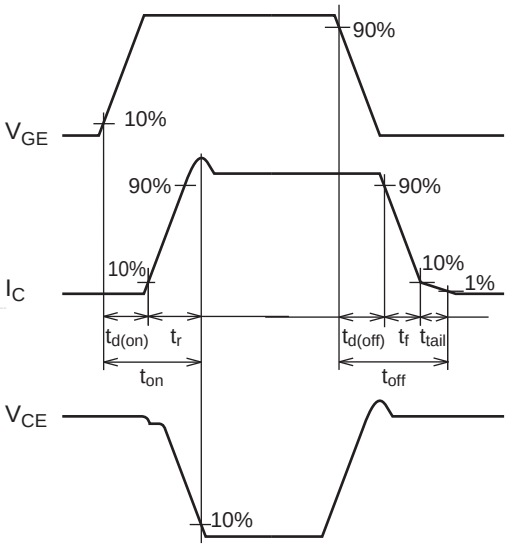
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



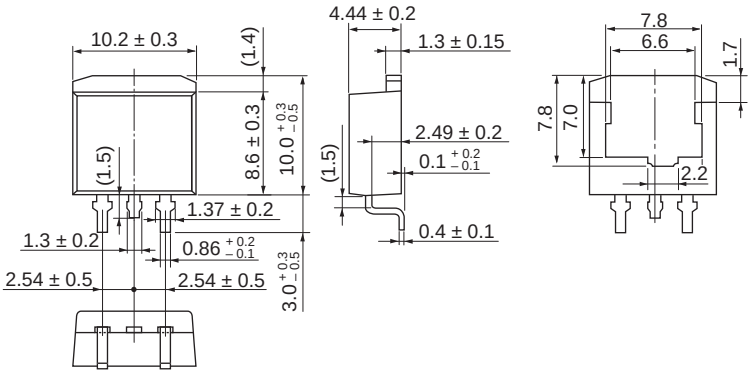
Waveform



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
LDPAK(S)-(1)	SC-83	PRSS0004AE-B	LDPAK(S)-(1) / LDPAK(S)-(1)V	1.30g

Unit: mm



Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJP60F0DPE-00-J3	1000 pcs	Taping

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