RJP60V0DPM-80

600V - 22A - IGBT
Application: Inverter

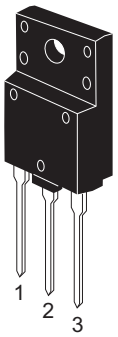
R07DS1036EJ0200
Rev.2.00
Apr 02, 2014

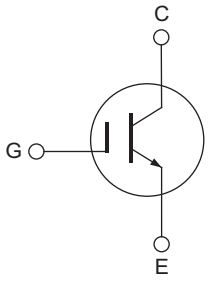
Features

- High breakdown-voltage
- Low collector to emitter saturation voltage
  $V_{CE(sat)}$ = 1.5 V typ. (at I_C = 22 A, V_{GE} = 15 V, Ta = 25°C)
- Short circuit withstand time (6 µs typ.)
- Trench gate and thin wafer technology (G6H series)

Outline

RENESAS Package code: PRSS0003ZD-A
(Package name: TO-3PF)





1. Gate
2. Collector
3. Emitter

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	Tc = 25°C	I_C	45	A
	Tc = 100°C	I_C	22	A
Collector peak current		$I_{C(peak)}$ Note1	90	A
Collector dissipation		P_C Note2	60	W
Junction to case thermal impedance		θj-c Note2	2.08	°C/ W
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%
2. Value at Tc = 25°C

Electrical Characteristics

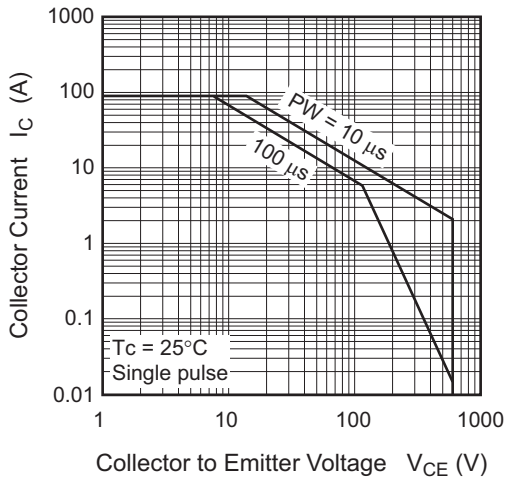
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	1	μA	V_{CE} = 600 V, V_{GE} = 0
Gate to emitter leak current	I_{GES}	—	—	±1	μA	V_{GE} = ±30 V, V_{CE} = 0
Gate to emitter cutoff voltage	$V_{GE(off)}$	5.5	—	7.5	V	V_{CE} = 10 V, I_C = 1 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.5	2.1	V	I_C = 22 A, V_{GE} = 15 V Note3
	$V_{CE(sat)}$	—	1.9	—	V	I_C = 45 A, V_{GE} = 15 V Note3
Input capacitance	Cies	—	1080	—	pF	V_{CE} = 25 V V_{GE} = 0 f = 1 MHz
Output capacitance	Coes	—	58	—	pF	
Reveres transfer capacitance	Cres	—	42	—	pF	
Total gate charge	Qg	—	75	—	nC	V_{GE} = 15 V V_{CE} = 300 V I_C = 22 A
Gate to emitter charge	Qge	—	10	—	nC	
Gate to collector charge	Qgc	—	45	—	nC	
Switching time	$t_{d(on)}$	—	45	—	ns	V_{CE} = 300 V, V_{GE} = 15 V I_C = 22 A Rg = 5 Ω Inductive load
	t_r	—	40	—	ns	
	$t_{d(off)}$	—	100	—	ns	
	t_f	—	70	—	ns	
Short circuit withstand time	t_{sc}	—	6	—	μs	V_{CC} ≤ 360 V , V_{GE} = 15 V Tc = 100 °C

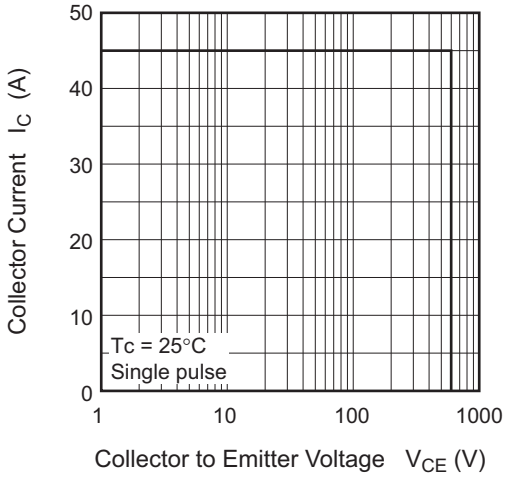
Notes: 3. Pulse test.

Main Characteristics

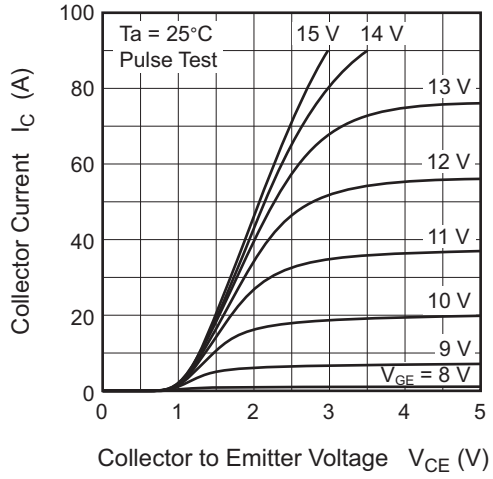
Maximum Safe Operation Area



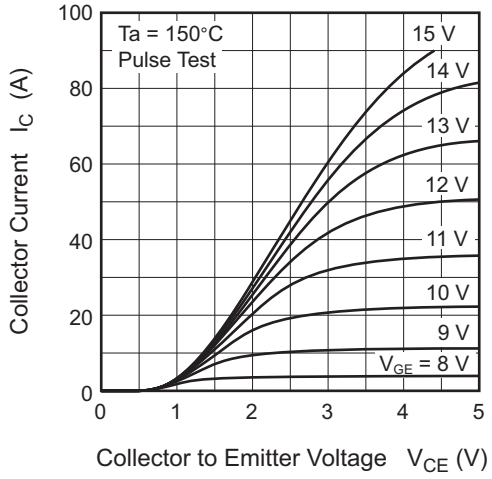
Turn-off Safe Operation Area



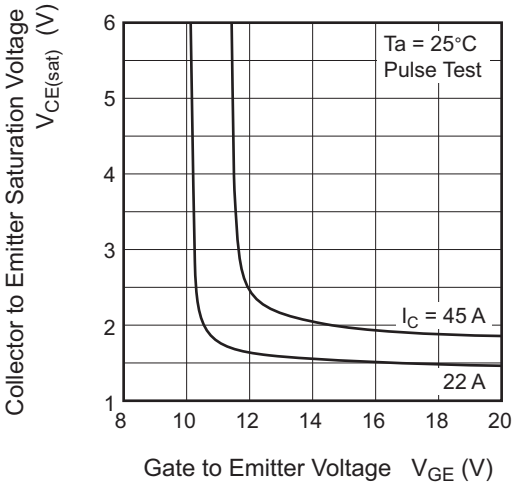
Typical Output Characteristics



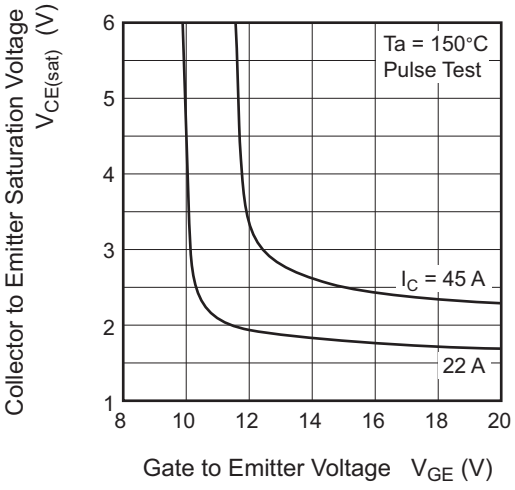
Typical Output Characteristics



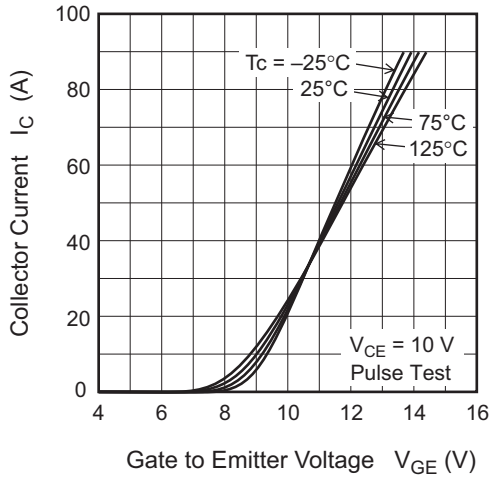
Collector to Emitter Saturation Voltage vs. Gate to Emitter Voltage (Typical)



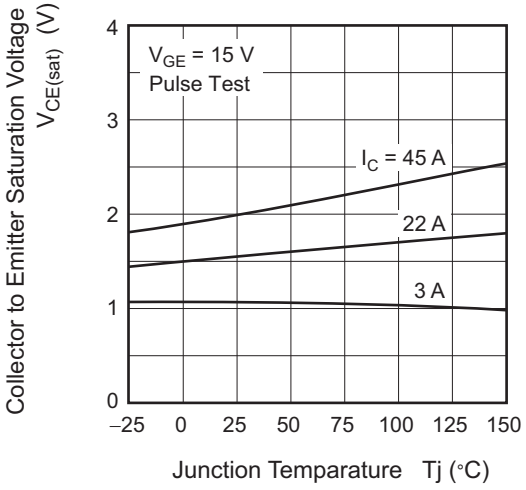
Collector to Emitter Saturation Voltage vs. Gate to Emitter Voltage (Typical)



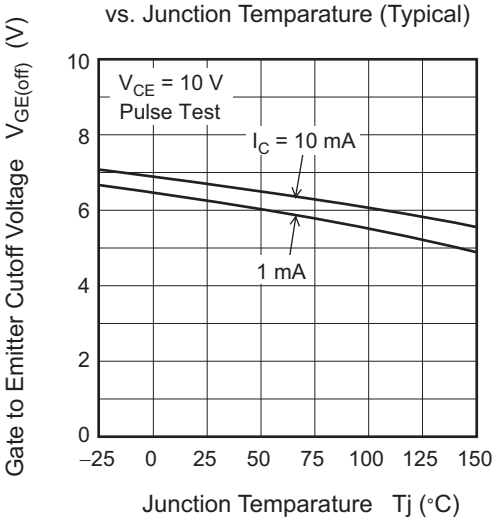
Typical Transfer Characteristics



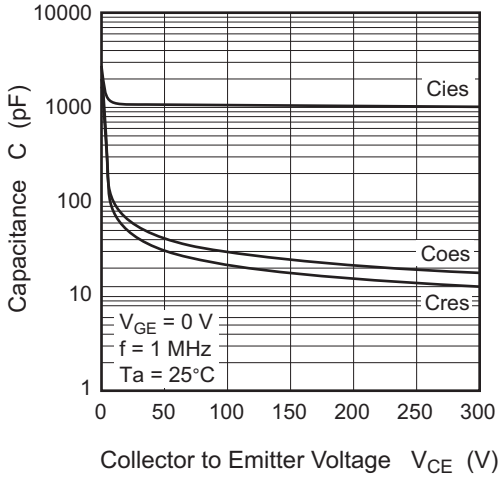
Collector to Emitter Saturation Voltage vs. Junction Temparature (Typical)



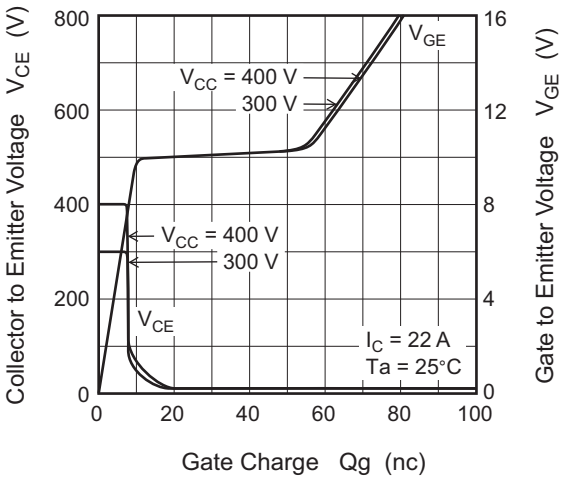
Gate to Emitter Cutoff Voltage vs. Junction Temparature (Typical)



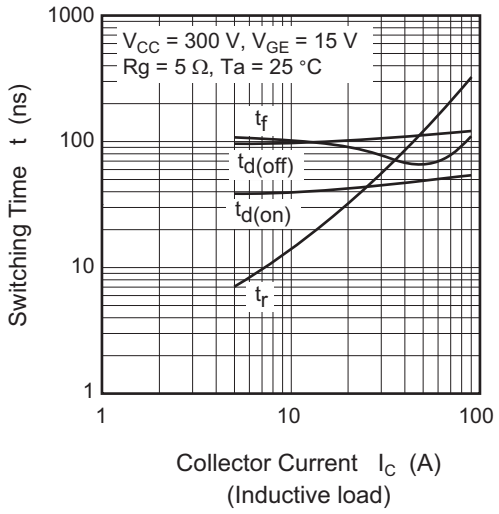
Typical Capacitance vs. Collector to Emitter Voltage



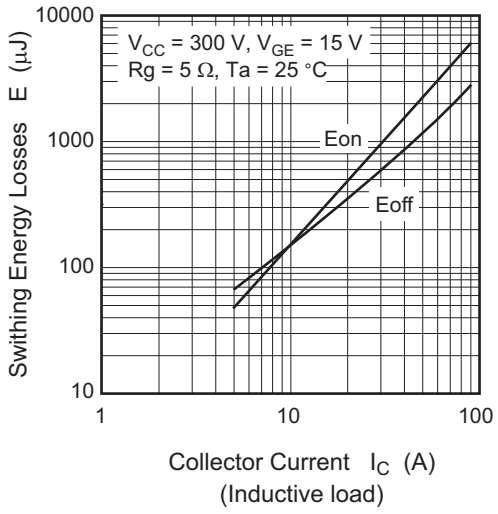
Dynamic Input Characteristics (Typical)



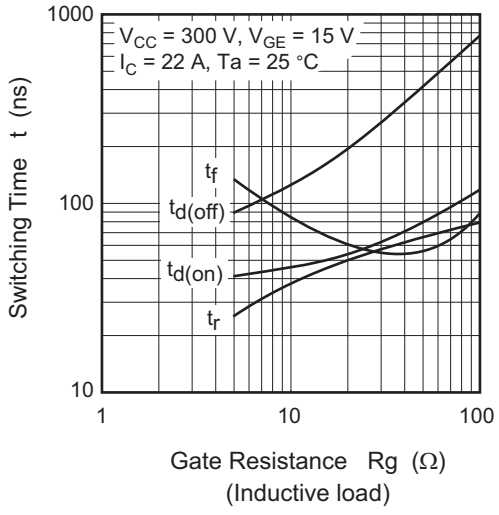
Switching Characteristics (Typical) (1)



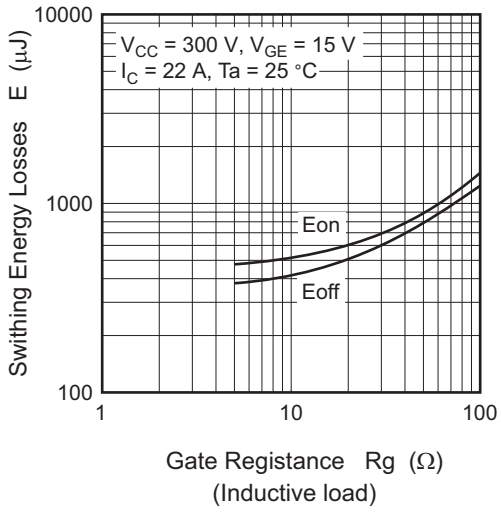
Switching Characteristics (Typical) (2)



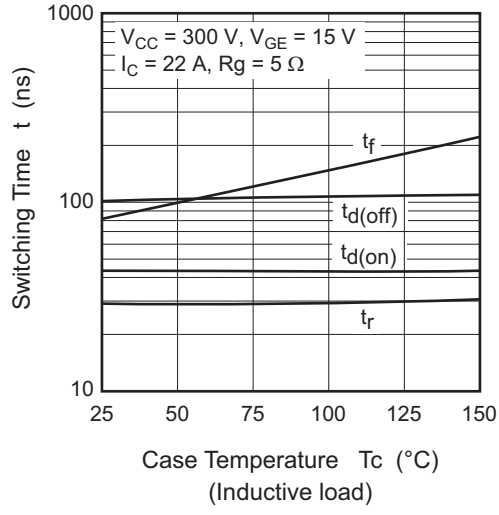
Switching Characteristics (Typical) (3)



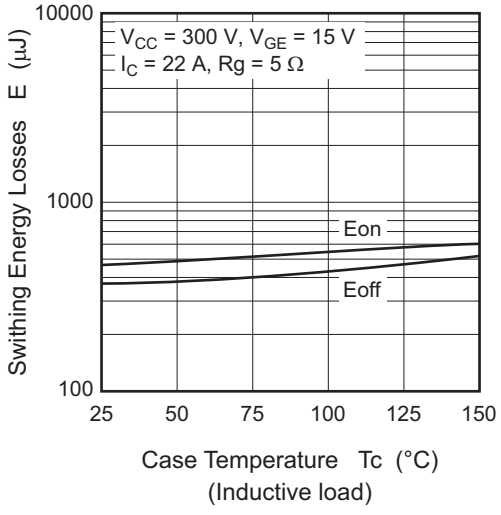
Switching Characteristics (Typical) (4)



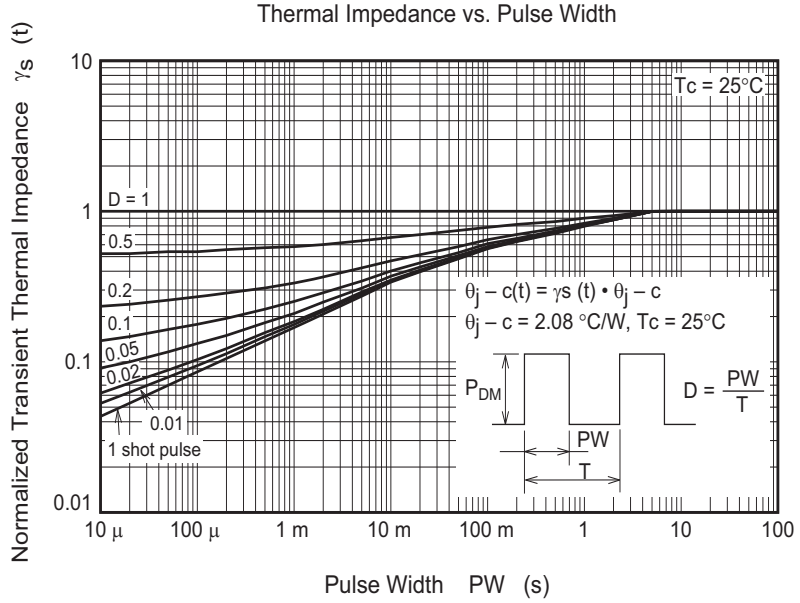
Switching Characteristics (Typical) (5)



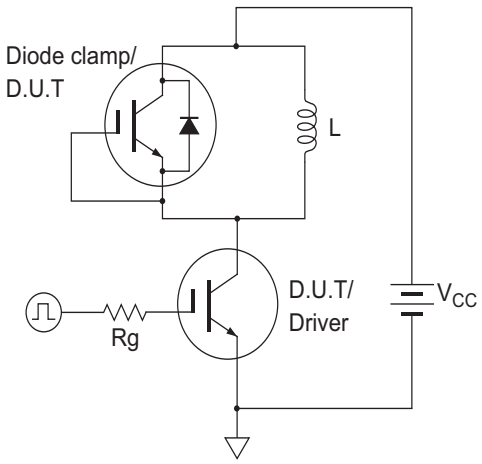
Switching Characteristics (Typical) (6)



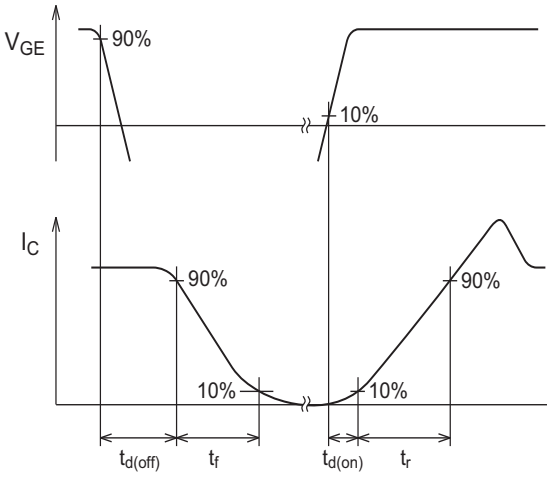
Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



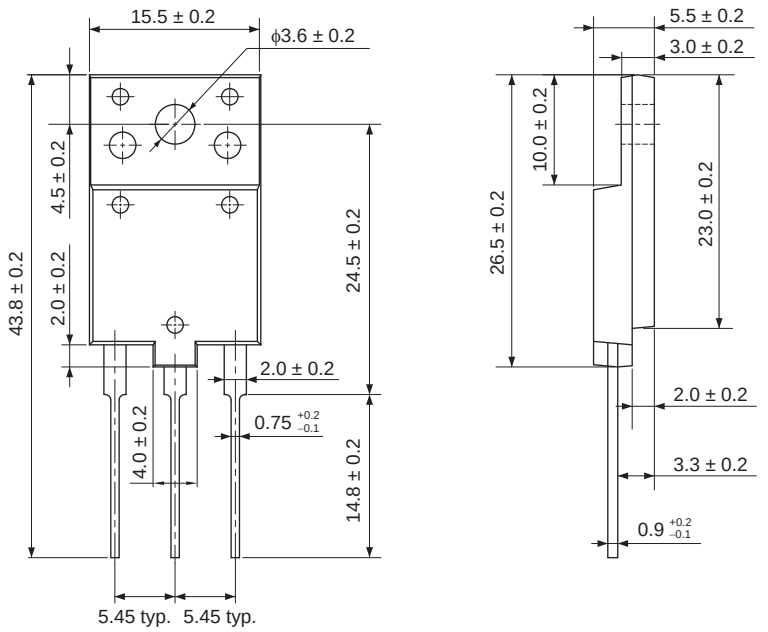
Waveform



Package Dimension

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-3PF	—	PRSS0003ZD-A	TO-3PFS	5.5g

Unit: mm



Ordering Information

Orderable Part No.	Quantity	Shipping Container
RJP60V0DPM-80#T2	360 pcs	Box (Tube)

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