

RJP30H1DPP-M0

Silicon N Channel IGBT
High speed power switching

R07DS0466EJ0200

Rev.2.00

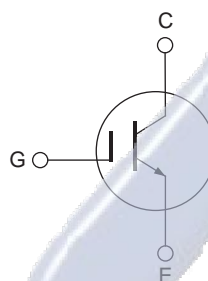
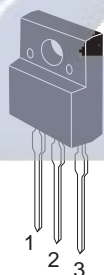
Jun 15, 2011

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.
- Isolated package TO-220FL

Outline

RENESAS Package code: PRSS0003AF-A)
(Package name: TO-220FL)



1. Gate
2. Collector
3. Emitter

Absolute Maximum Ratings

(Ta = 25°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	$i_c(\text{peak})$ ^{Note1}	200	A
Collector dissipation	P_C ^{Note2}	20	W
Junction to case thermal impedance	θ_{j-c}	6.25	°C/W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

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

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Electrical Characteristics

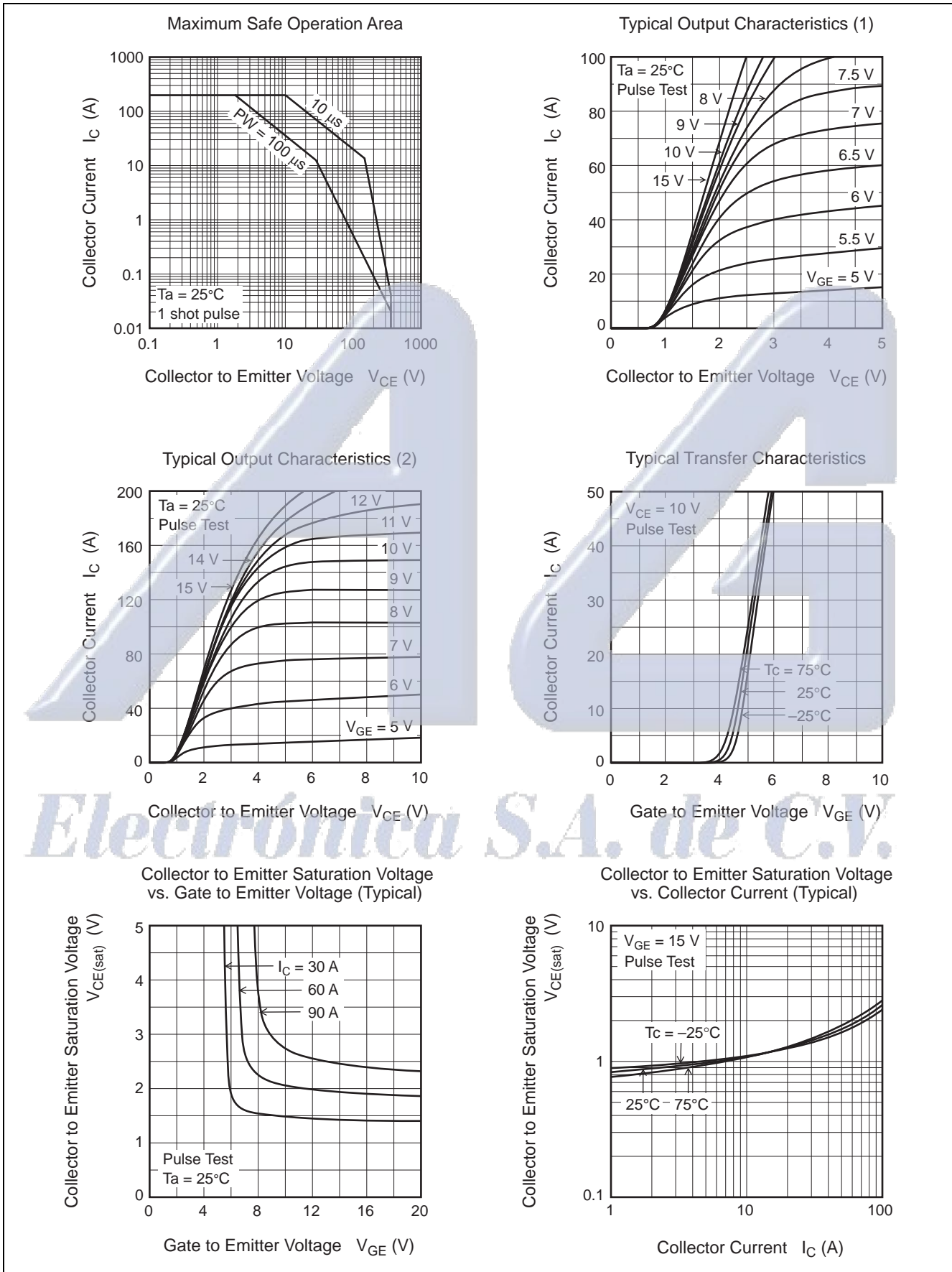
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	1	μA	$V_{CE} = 360\text{ V}, V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 100	nA	$V_{GE} = \pm 30\text{ V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	2.5	—	5	V	$V_{CE} = 10\text{ V}, I_C = 1\text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.5	2	V	$I_C = 30\text{ A}, V_{GE} = 15\text{ V}$ ^{Note3}
Input capacitance	C_{ies}	—	740	—	pF	$V_{CE} = 25\text{ V}$
Output capacitance	C_{oes}	—	40	—	pF	$V_{GE} = 0$
Reveres transfer capacitance	C_{res}	—	17	—	pF	$f = 1\text{ MHz}$
Total gate charge	Q_g	—	23	—	nC	$V_{GE} = 15\text{ V}$
Gate to emitter charge	Q_{ge}	—	4	—	nC	$V_{CE} = 150\text{ V}$
Gate to collector charge	Q_{gc}	—	8	—	nC	$I_C = 30\text{ A}$
Switching time	$t_{d(on)}$	—	0.02	—	μs	$I_C = 30\text{ A}$
	t_r	—	0.08	—	μs	$R_L = 5\ \Omega$
	$t_{d(off)}$	—	0.04	—	μs	$V_{GE} = 15\text{ V}$
	t_f	—	0.15	—	μs	$R_G = 5\ \Omega$

Notes: 3. Pulse test

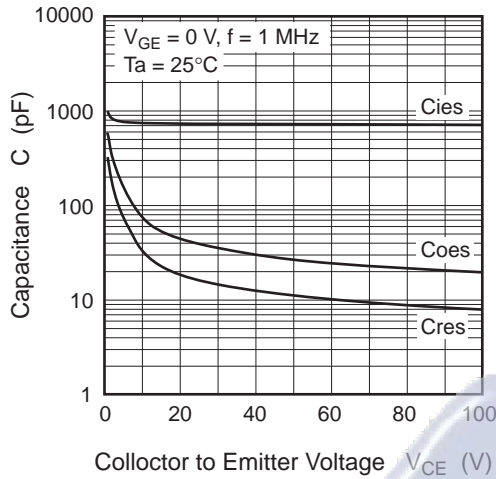
Electrónica S.A. de C.V.

Main Characteristics

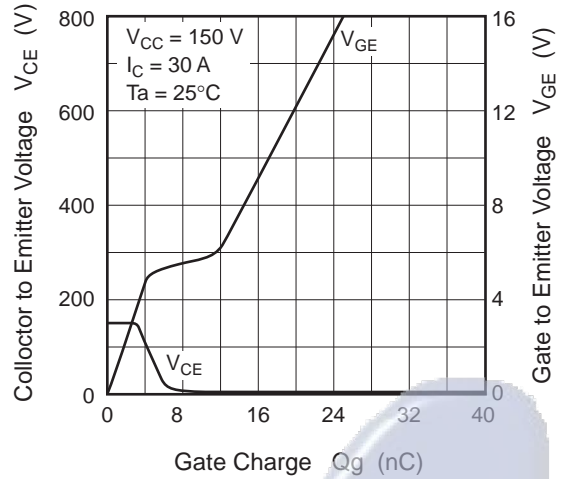


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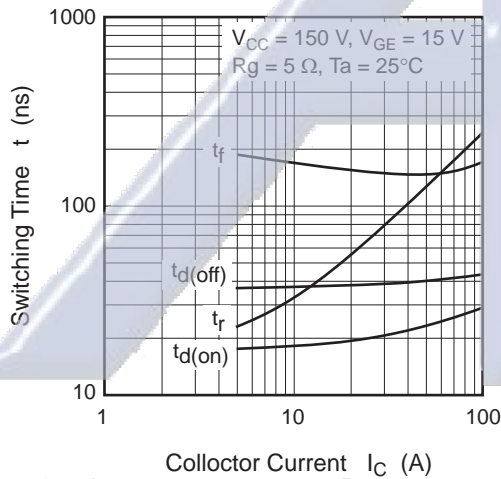
Typical Capacitance vs. Collector to Emitter Voltage



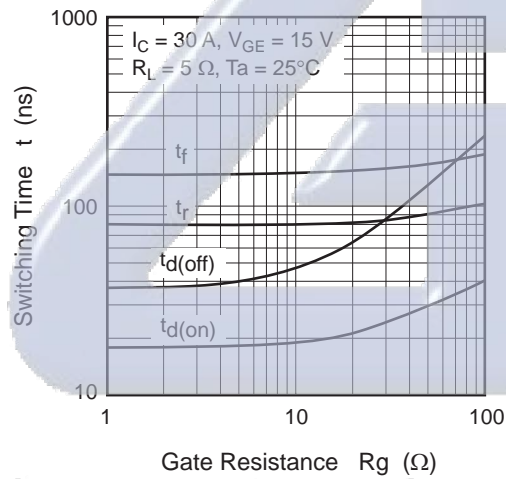
Dynamic Input Characteristics (Typical)



Switching Characteristics (Typical) (1)

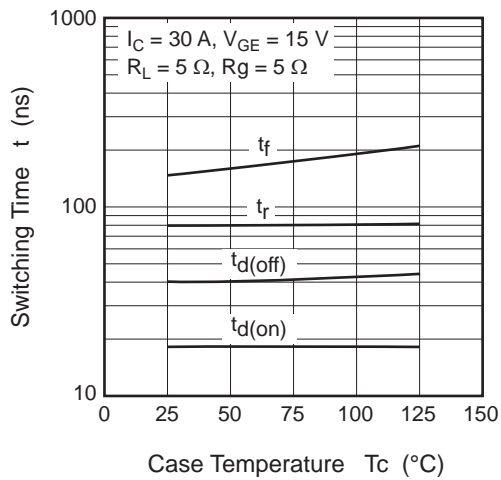


Switching Characteristics (Typical) (2)



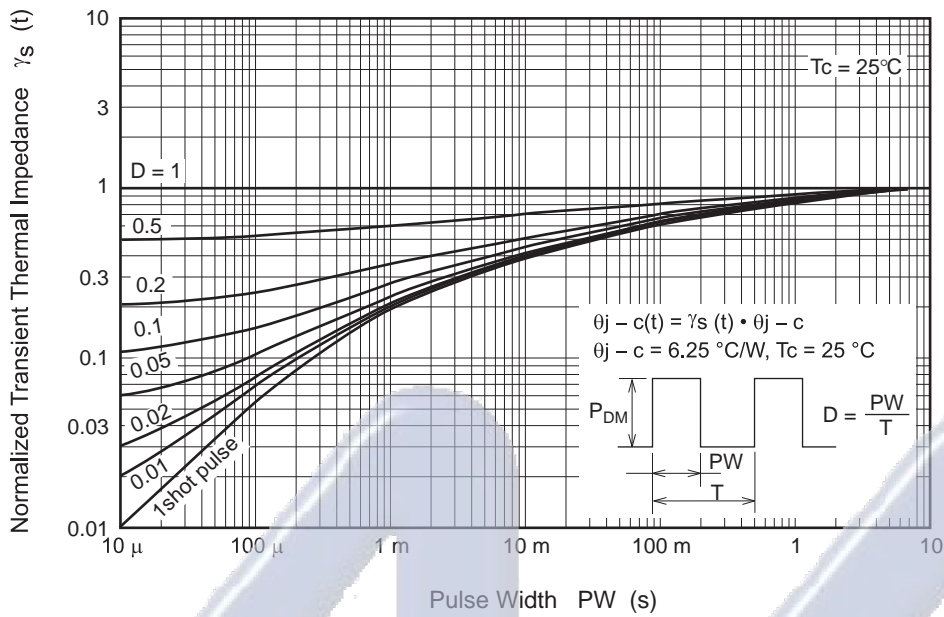
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Switching Characteristics (Typical) (3)

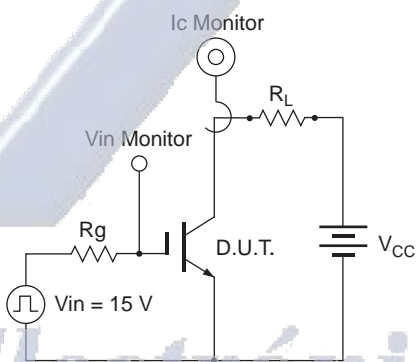


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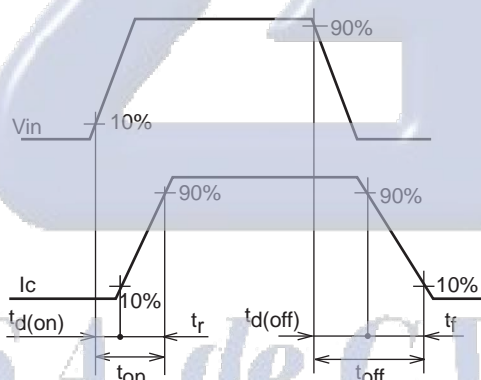
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

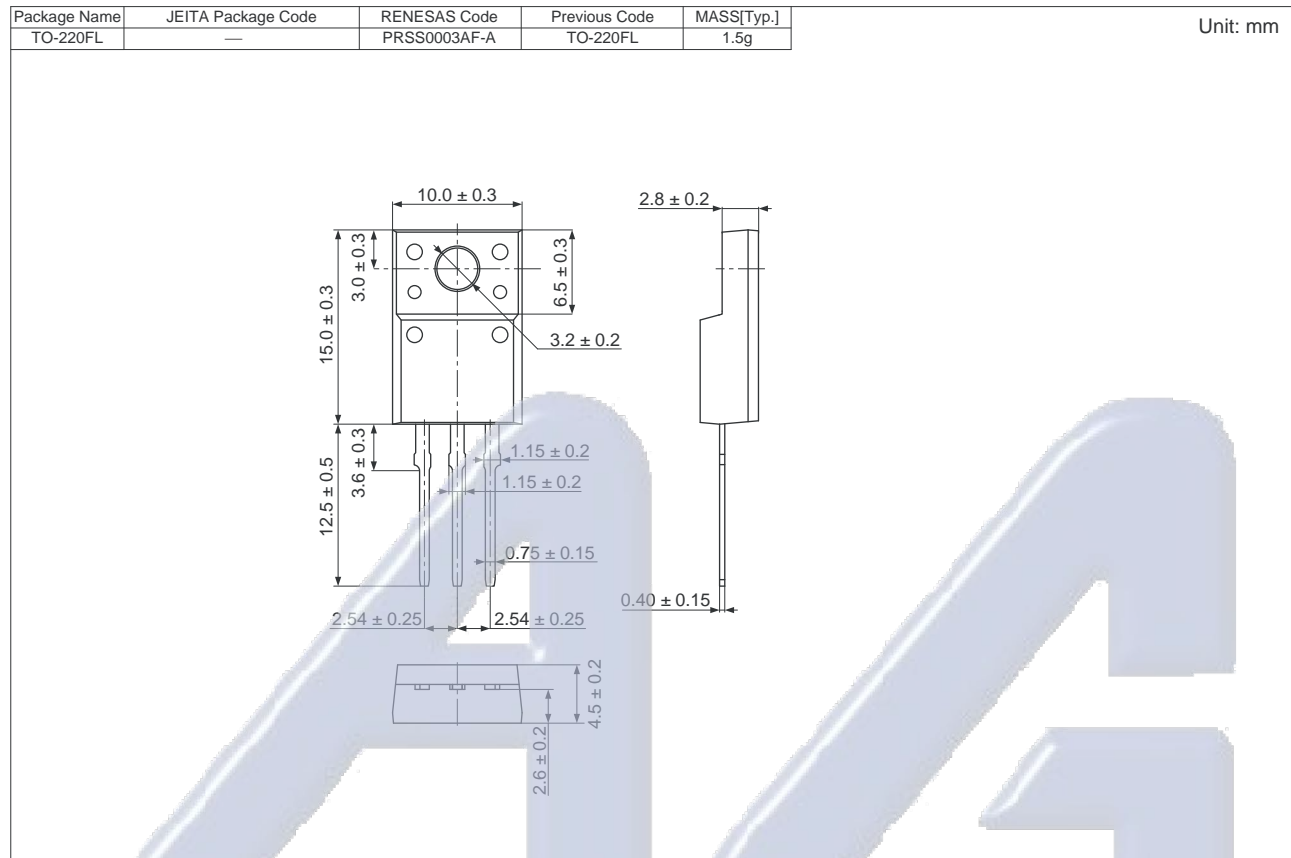


Waveform



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Package Dimensions



Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJP30H1DPP-M0-T2	600 pcs	Box (Tube)

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