RJP5001APP-M0

Nch IGBT for Strobe Flash

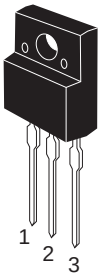
R07DS0750EJ0100
Rev.1.00
Apr 26, 2012

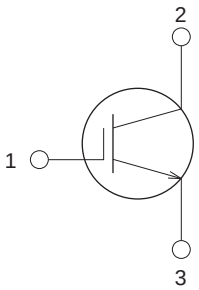
Features

- V_{CES} : 500 V
- TO-220FL package
- High Speed Switching

Outline

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





1 : Gate
2 : Collector
3 : Emitter

Applications

Strobe flash

Maximum Ratings

(Tc = 25°C)

Parameter	Symbol	Ratings	Unit	Conditions
Collector-emitter voltage	V_{CES}	500	V	V_{GE} = 0 V
Gate-emitter voltage	V_{GES}	±17	V	V_{CE} = 0 V, Refer to item 4 under Notes on the Actual Specifications
Collector current (Pulse)	I_{CM}	300	A	C_M = 2000 µF (see performance curve)
Maximum power dissipation	P_C	45	W	
Junction temperature	Tj	– 40 to +150	°C	
Storage temperature	Tstg	– 40 to +150	°C	
Mass	—	1.5	g	Typical value

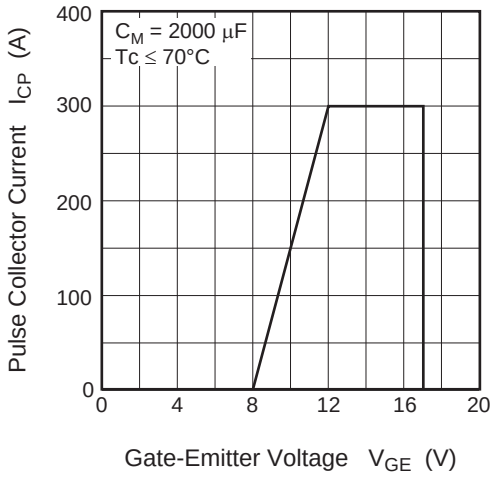
Electrical Characteristics

(Tj = 25°C)

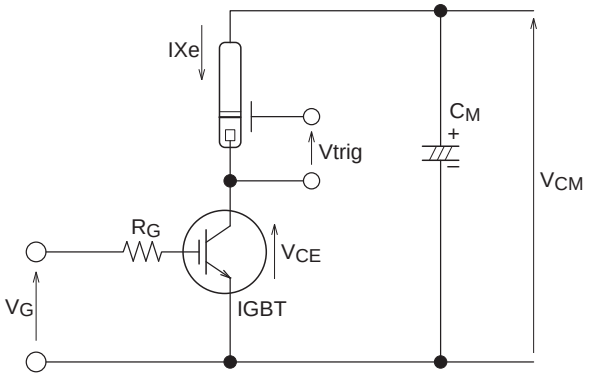
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Collector-emitter breakdown voltage	$V_{(BR)CES}$	500	—	—	V	I_C = 100 μA, V_{GE} = 0 V
Collector-emitter leakage current	I_{CES}	—	—	10	μA	V_{CE} = 500 V, V_{GE} = 0 V
Gate-emitter leakage current	I_{GES}	—	—	±0.1	μA	V_{GE} = ±17 V, V_{CE} = 0 V
Gate-emitter threshold voltage	$V_{GE(th)}$	1.3	—	2.7	V	V_{CE} = 10 V, I_C = 1 mA
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	4.7	10	V	I_C = 300 A, V_{GE} = 12 V
Input capacitance	Ciss	—	2050	—	pF	V_{CE} = 25 V V_{GE} = 0 V f = 1 MHz
Output capacitance	Coss	—	130	—	pF	
Reverse transfer capacitance	Crss	—	12	—	pF	
Turn-on delay time	$t_{d(on)}$	—	0.10	—	μs	I_C = 300 A V_{GE} = 12 V V_{CC} = 300 V R_G = 30 Ω
Rise time	t_r	—	0.43	—	μs	
Turn-off delay time	$t_{d(off)}$	—	0.20	—	μs	
Fall time	t_f	—	0.55	—	μs	

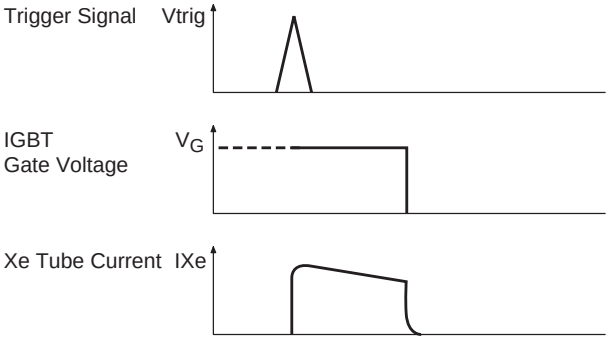
Performance Curves

Maximum Pulse Collector Current



Application Example





	Recommended Operation Conditions	Maximum Operation Conditions
V_{CM}	300 V	350 V
I_{CP}	200 A	300 A
C_M	1500 μF	2000 μF
V_{GE}	14 V	12 V

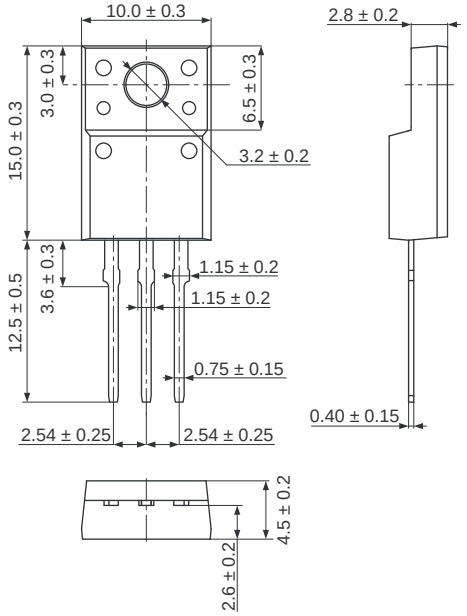
Precautions on Usage

1. Gate drive voltage during on-period must be applied to satisfy the rating of maximum pulse collector current. And turn-off dv/dt must become less than 1000 V/μs.
2. IGBT has MOS structure and its gate is insulated by thin silicon oxide. So please handle carefully to protect the device from electrostatic charge.
3. The operation life should be endured until repeated discharge of 5,000 times under the charge current ($I_{Xe} \leq 300$ A : full luminescence condition) of main capacitor. Repetition period under full luminescence condition is over 5 seconds.
4. Total operation hours applied to the gate-emitter voltage must be within 5,000 hours.
5. Switching frequency is using it by less than 70 kHz.

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220FL	—	PRSS0003AF-A	TO-220FL	1.5g

Unit: mm



Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJP5001APP-M0-T2	50 pcs	Magazine (Tube)

Note: The symbol of 2nd "-" is occasionally presented as "#".

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