

RJH60F5DPK

Silicon N Channel IGBT
High Speed Power Switching

REJ03G1836-0100

Rev.1.00

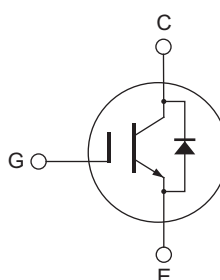
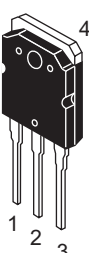
Oct 13, 2009

Features

- High speed switching
- Low on-state voltage
- Fast recovery diode

Outline

RENESAS Package code: PRSS0004ZE-A
(Package name: TO-3P)



1. Gate
2. Collector
3. Emitter
4. Collector (Flange)

Absolute Maximum Ratings

(T_c = 25°C)

Item	Symbol	Ratings	Unit
Collector to emitter voltage	V _{CES}	600	V
Gate to emitter voltage	V _{GES}	±30	V
Collector current	T _c = 25 °C	I _C	80
	T _c = 100 °C	I _C	40
Collector peak current	i _C (peak) ^{Note1}	160	A
Collector to emitter diode forward peak current	i _{DF} (peak) ^{Note2}	100	A
Collector dissipation	P _C	260.4	W
Junction to case thermal impedance (IGBT)	θ _{j-c}	0.48	°C/W
Junction to case thermal impedance (Diode)	θ _{j-c}	2.0	°C/W
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

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

2. PW ≤ 5 μs, duty cycle ≤ 1%

Electrical Characteristics

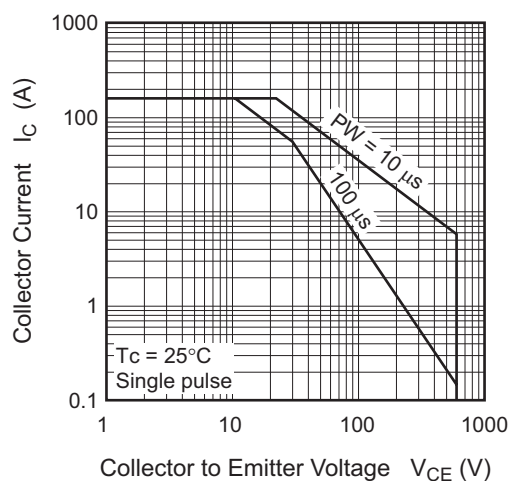
(Tj = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	100	μA	$V_{CE} = 600\text{V}$, $V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30\text{V}$, $V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	4	—	8	V	$V_{CE} = 10\text{V}$, $I_C = 1\text{mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.37	1.8	V	$I_C = 40\text{A}$, $V_{GE} = 15\text{V}$ ^{Note3}
	$V_{CE(sat)}$	—	1.7	—	V	$I_C = 80\text{A}$, $V_{GE} = 15\text{V}$ ^{Note3}
Input capacitance	C_{ies}	—	2880	—	pF	$V_{CE} = 25\text{V}$ $V_{GE} = 0\text{V}$ $f = 1\text{MHz}$
Output capacitance	C_{oes}	—	122	—	pF	
Reverse transfer capacitance	C_{res}	—	47	—	pF	
Switching time	$t_{d(on)}$	—	40	—	ns	$I_C = 30\text{A}$, Resistive Load $V_{CC} = 300\text{V}$ $V_{GE} = 15\text{V}$ $R_g = 5\Omega$ ^{Note3}
	t_r	—	35	—	ns	
	$t_{d(off)}$	—	80	—	ns	
	t_f	—	80	—	ns	
C-E diode forward voltage	V_{ECF1}	—	1.6	2.1	V	$I_F = 20\text{A}$ ^{Note3}
	V_{ECF2}	—	1.8	—	V	$I_F = 40\text{A}$ ^{Note3}
C-E diode reverse recovery time	t_{rr}	—	140	—	ns	$I_F = 20\text{A}$ $di_F/dt = 100\text{A}/\mu\text{s}$

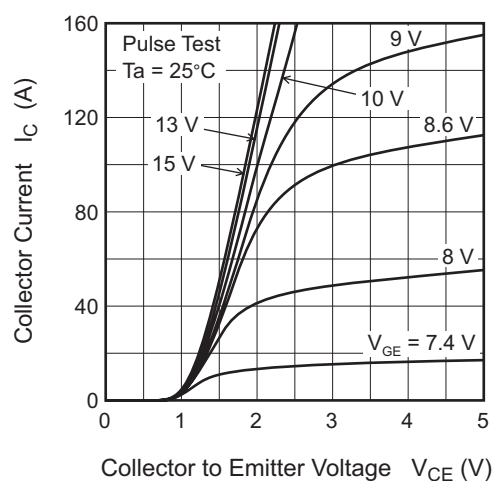
Notes: 3. Pulse test

Main Characteristics

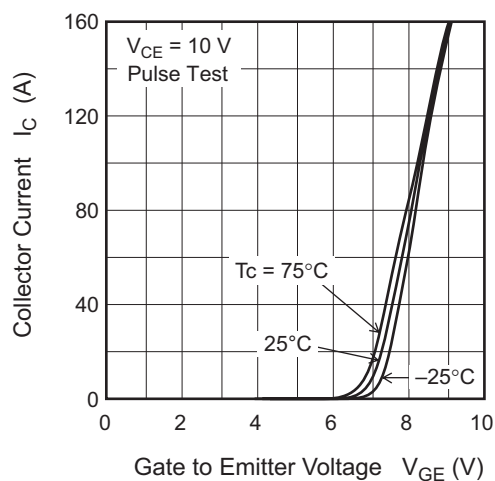
Maximum Safe Operation Area



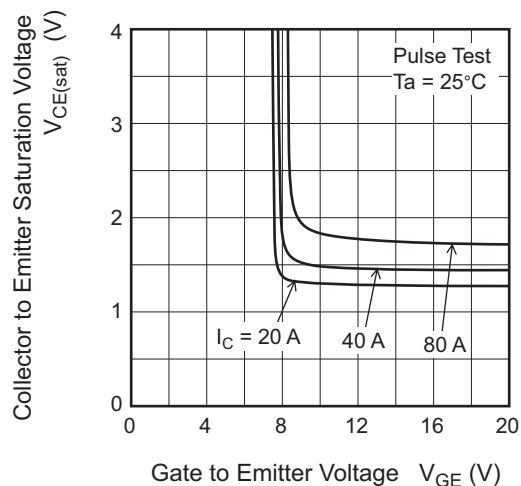
Typical Output Characteristics



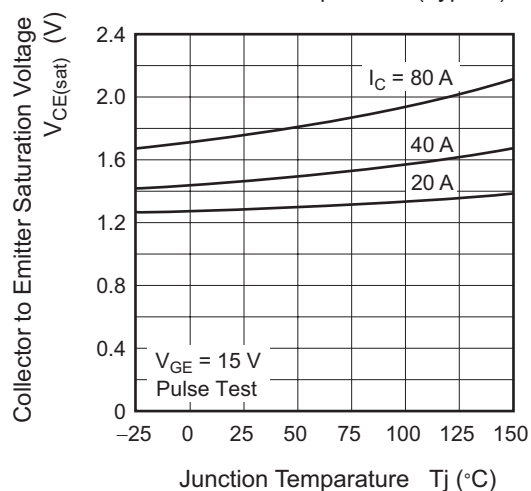
Typical Transfer Characteristics



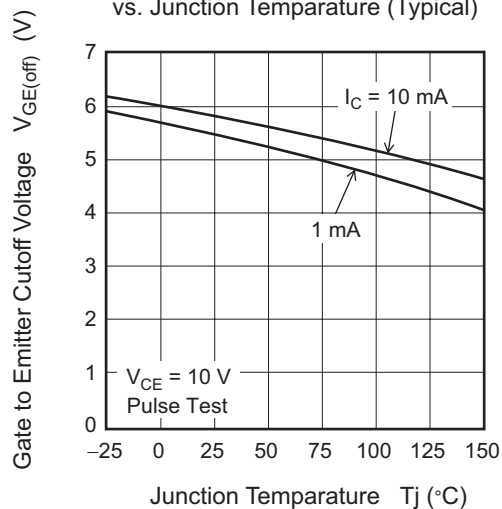
Collector to Emitter Saturation Voltage vs. Gate to Emitter Voltage (Typical)



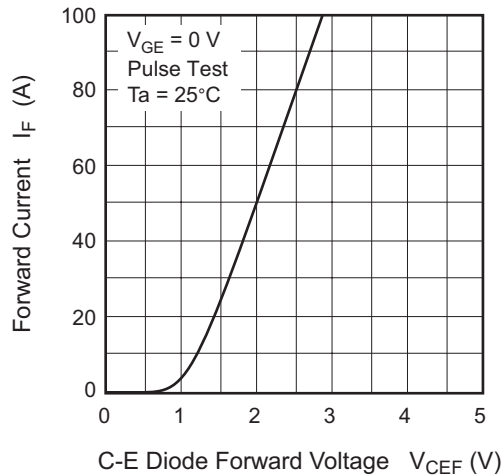
Collector to Emitter Saturation Voltage vs. Junction Temperature (Typical)



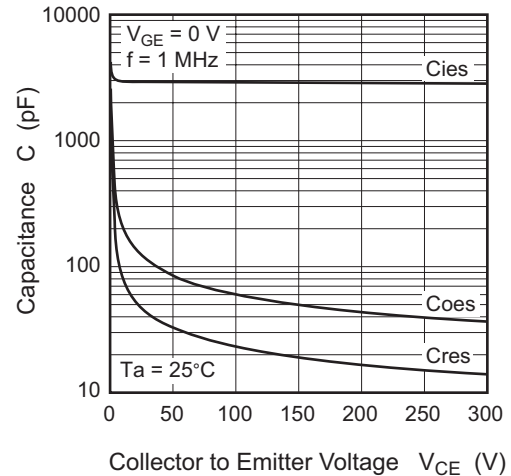
Gate to Emitter Cutoff Voltage vs. Junction Temperature (Typical)



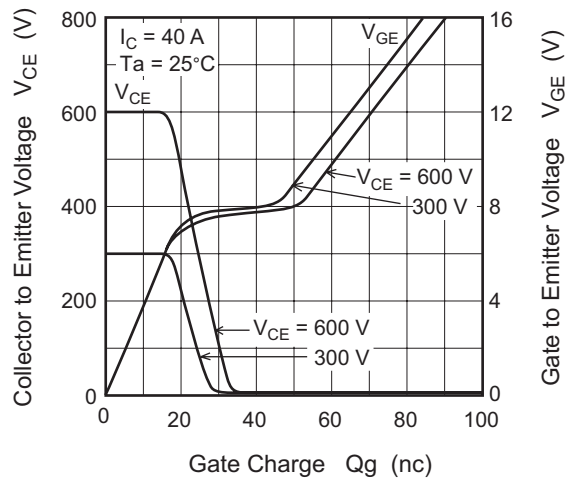
Forward Current vs. Forward Voltage (Typical)



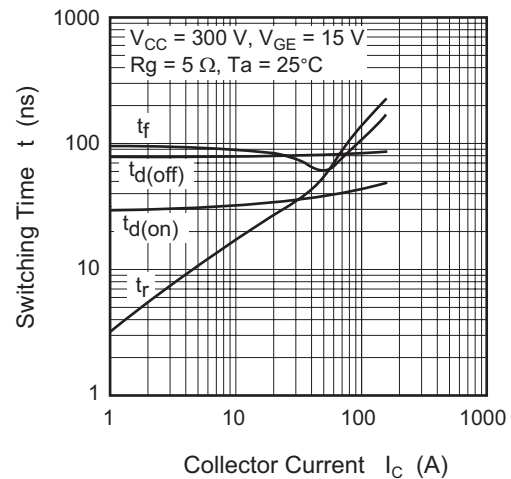
Typical Capacitance vs. Collector to Emitter Voltage (Typical)



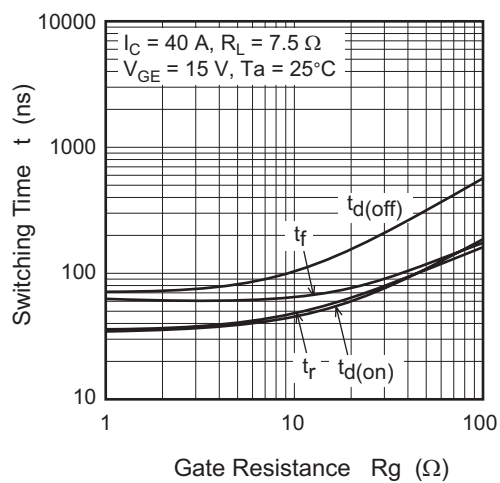
Dynamic Input Characteristics (Typical)



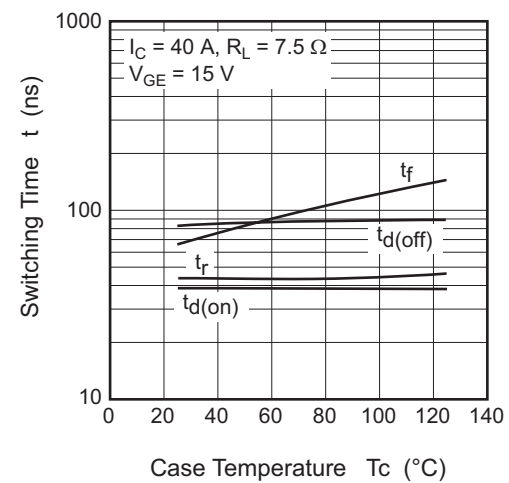
Switching Characteristics (Typical) (1)

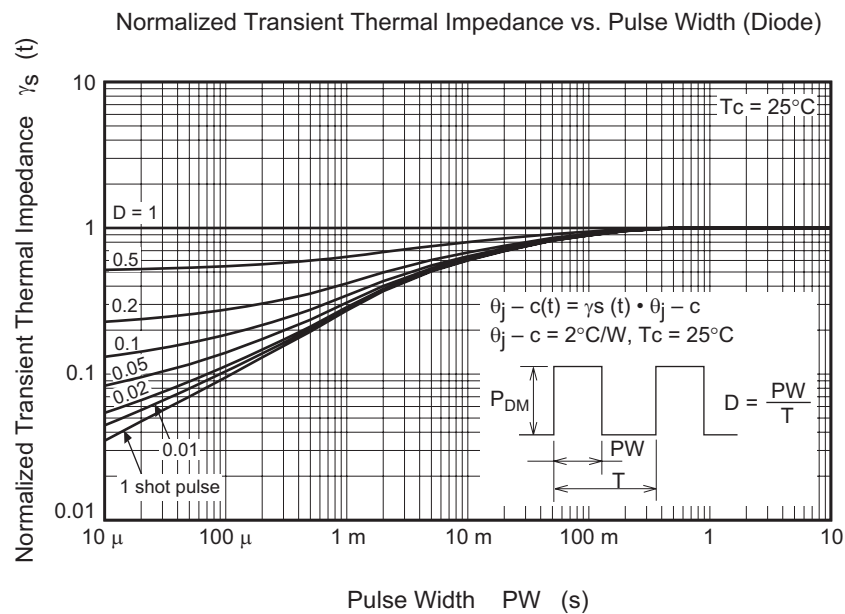
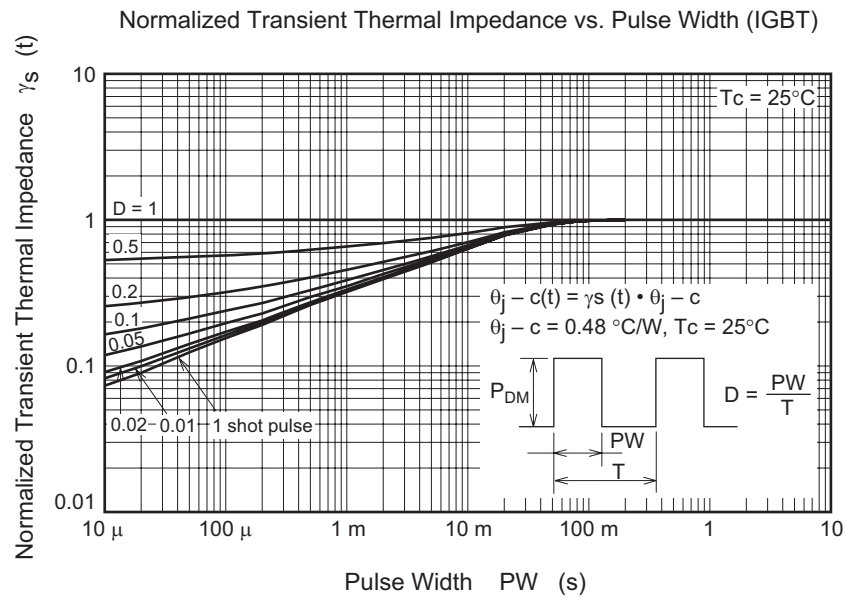


Switching Characteristics (Typical) (2)

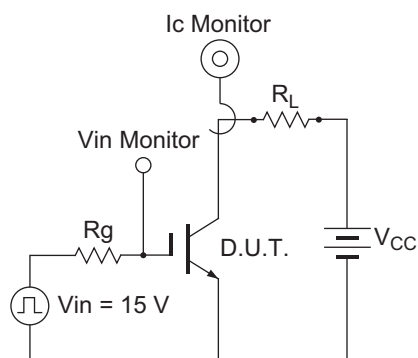


Switching Characteristics (Typical) (3)

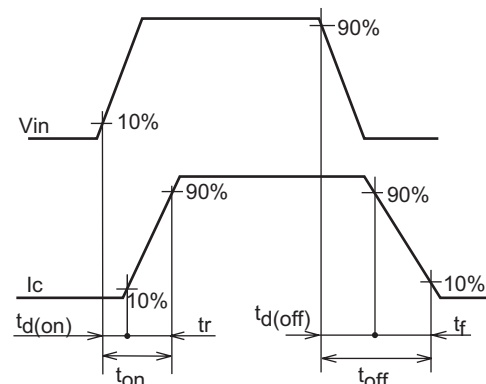




Switching Time Test Circuit

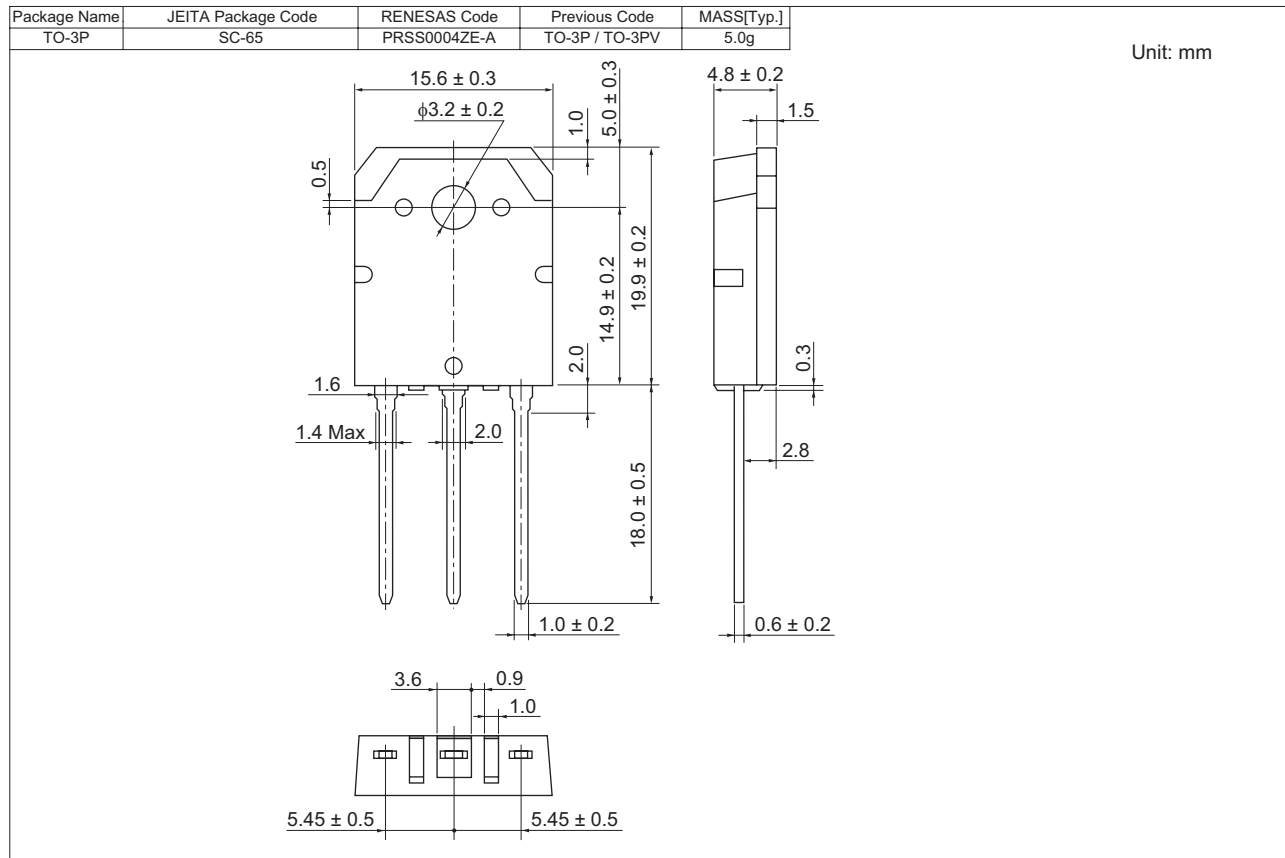


Waveform



Package Dimensions

www.DataSheet4U.com



Ordering Information

Part No.	Quantity	Shipping Container
RJH60F5DPK-00-T0	360 pcs	Box (Tube)

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