To all our customers

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Renesas Technology Home Page: http://www.renesas.com

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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Not recommend for new design

2SH30

Silicon N Channel IGBT
High Speed Power Switching

ADE-208-792A(Z)
2nd. Edition
May 1999

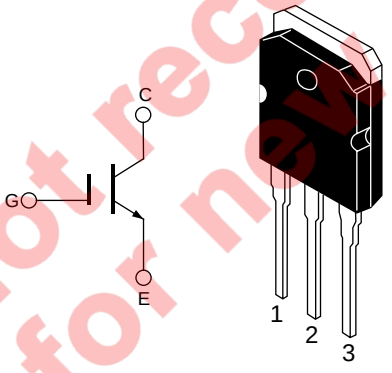
Not recommend for new design

Features

- High speed switching
- Low on-voltage

Outline

TO–3P



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

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to Emitter voltage	V_{CES}	600	V
Gate to Emitter voltage	V_{GES}	±20	V
Collector current	I_C	50	A
Collector peak current	ic(peak)	100	A
Collector dissipation	P_C Note1	100	W
Channel temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. 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}	—	—	250	µA	V_{CE} = 600V, V_{GE} = 0
Gate to emitter leak current	I_{GES}	—	—	±1	µA	V_{GE} = ± 20 V, V_{CE} = 0
Gate to emitter cutoff voltage	$V_{GE(off)}$	6.0	—	8.0	V	I_C = 50 mA, V_{CE} = 10V
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	2.1	2.6	V	I_C = 50 A, V_{GE} = 15V
Input capacitance	Cies	—	2800	—	pF	V_{CE} = 10V, V_{GE} = 0 f = 1MHz
Switching time	t_r	—	280	—	ns	I_C = 50 A
	t_{on}	—	430	—	ns	R_L = 6 Ω
	t_f	—	300	600	ns	V_{GS} = ±15V
	t_{off}	—	650	1300	ns	Rg = 50 Ω

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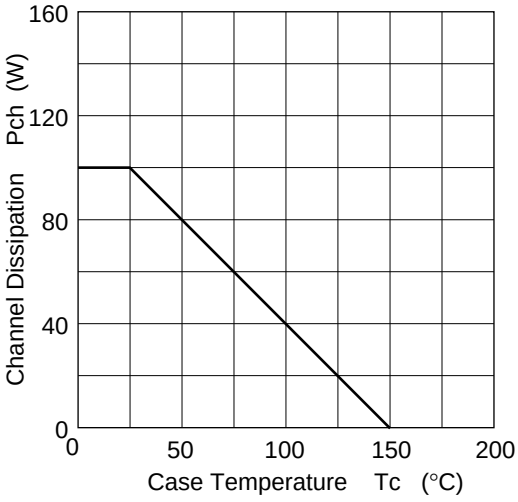
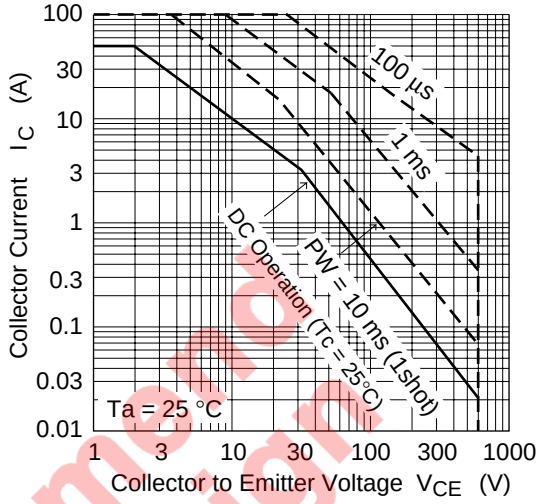
Main Characteristics

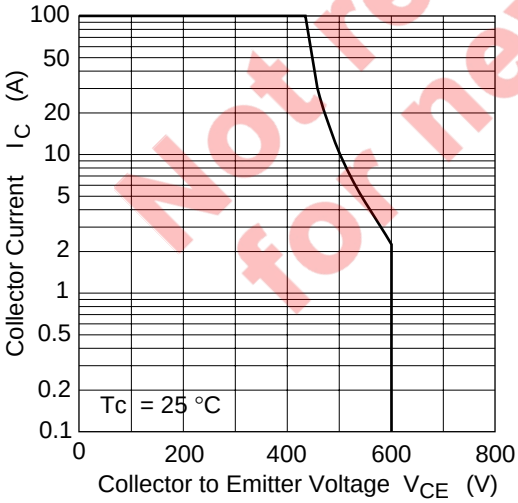
Power vs. Temperature Derating



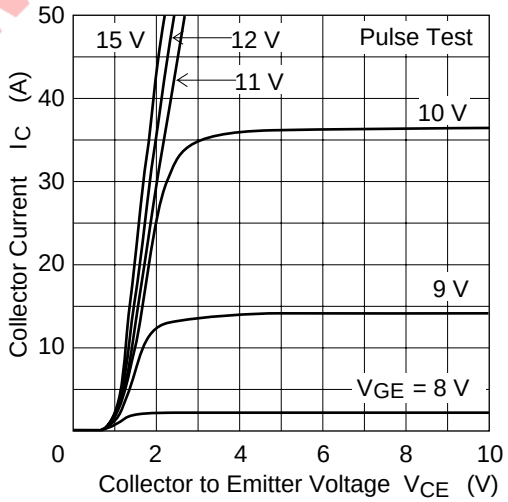
Maximum Safe Operation Area



Reverse Bias SOA



Typical Output Characteristics



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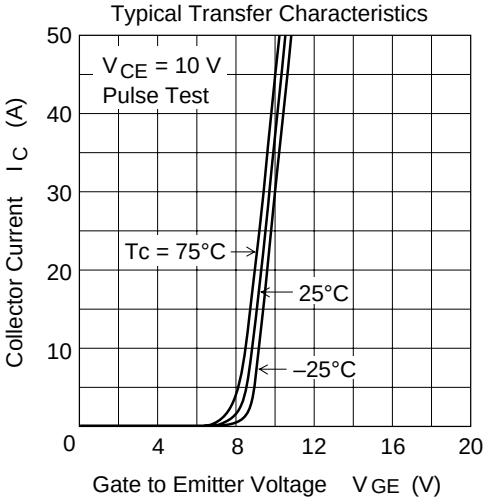
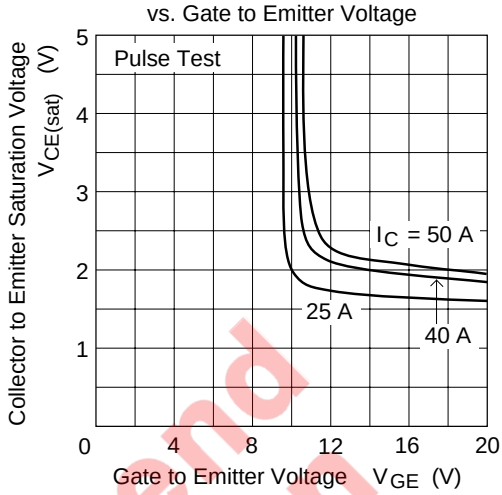
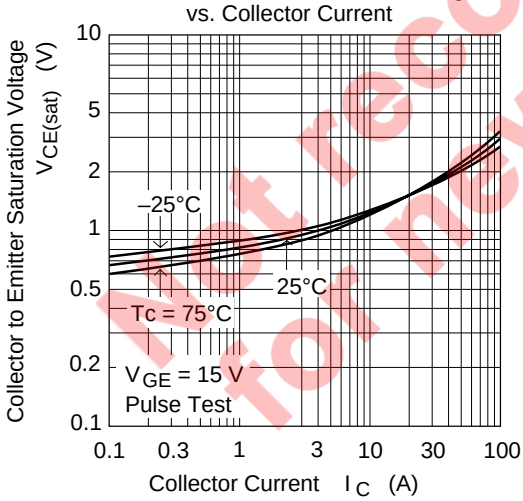
Typical Transfer Characteristics



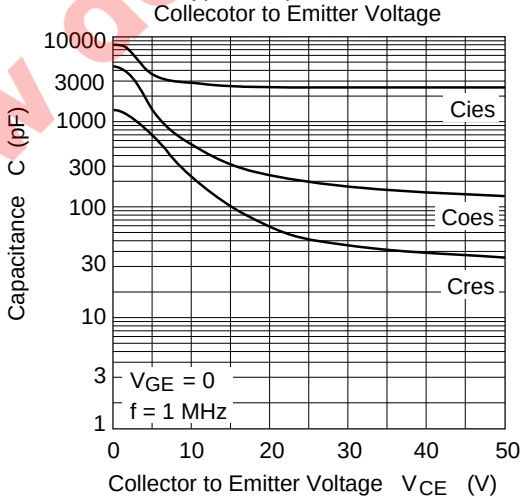
Collector to Emitter Saturation Voltage vs. Gate to Emitter Voltage



Collecot to Emitter Saturation Voltage vs. Collector Current



Typical Capacitance vs. Collecotor to Emitter Voltage



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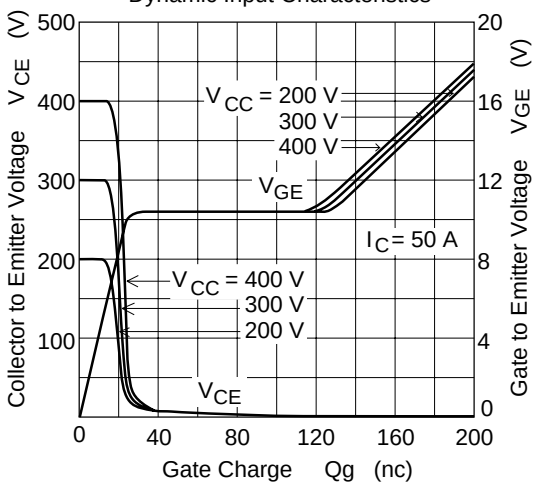
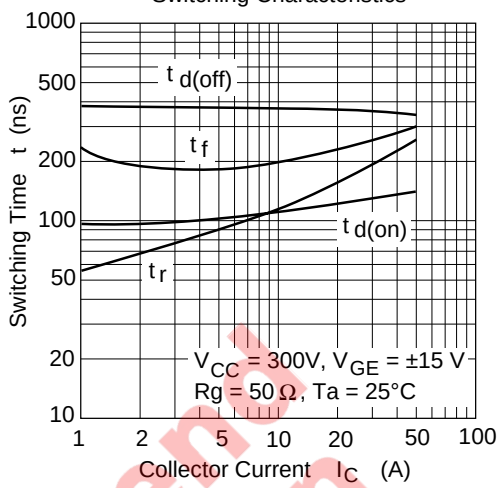
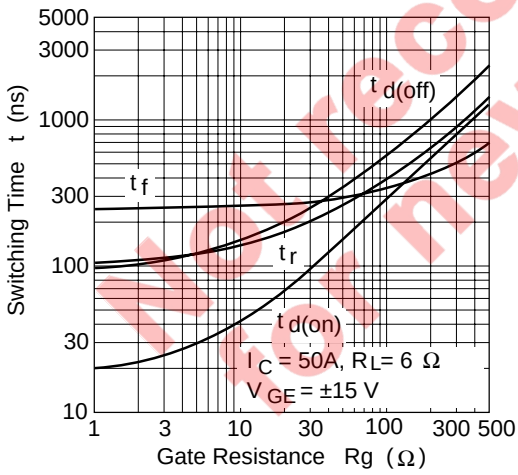
Dynamic Input Characteristics



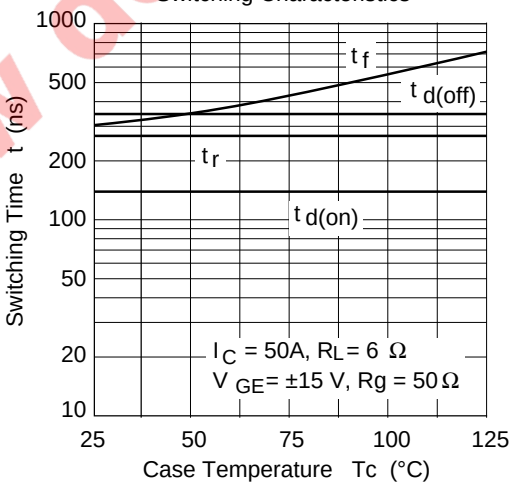
Switching Characteristics



Switching Characteristics



Switching Characteristics



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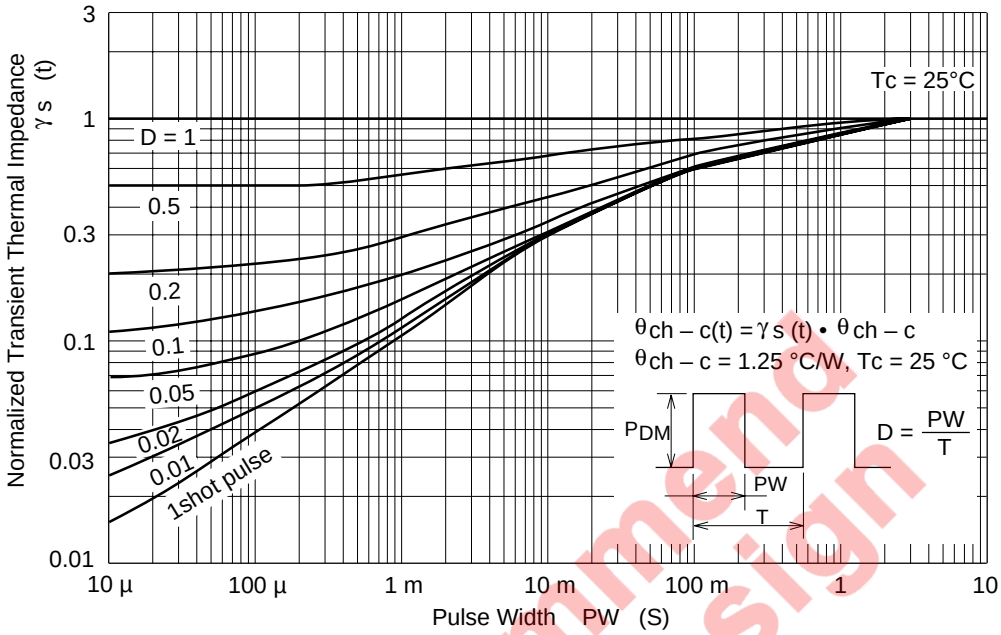
Normalized Transient Thermal Impedance vs. Pulse Width



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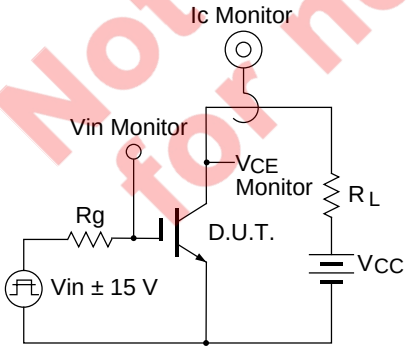
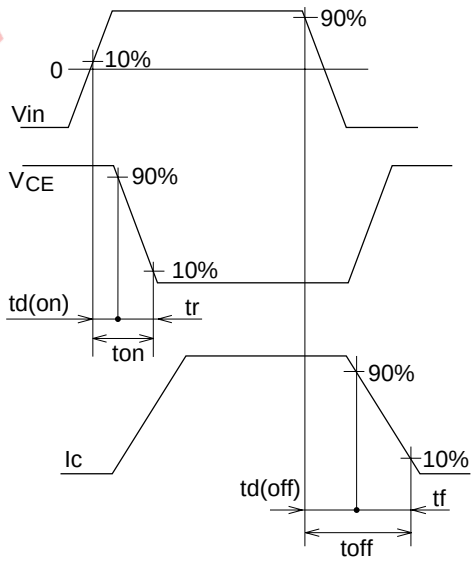
Switching Time Test Circuit

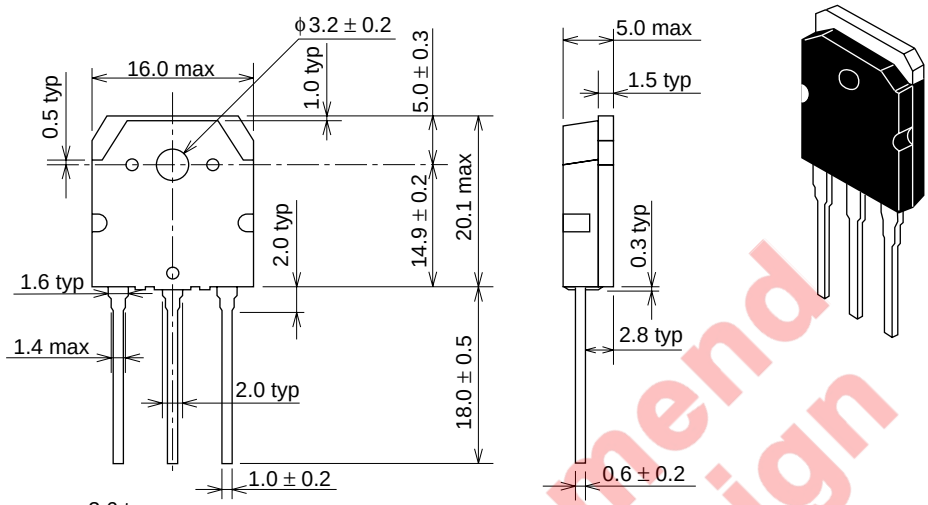


Waveform



Package Dimensions

Unit: mm



Hitachi Code	TO–3P
EIAJ	SC–65
JEDEC	—

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