

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Not recommended
for new design

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

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2SH31

Silicon N Channel IGBT
High Speed Power Switching

RENESAS

ADE-208-793(Z)

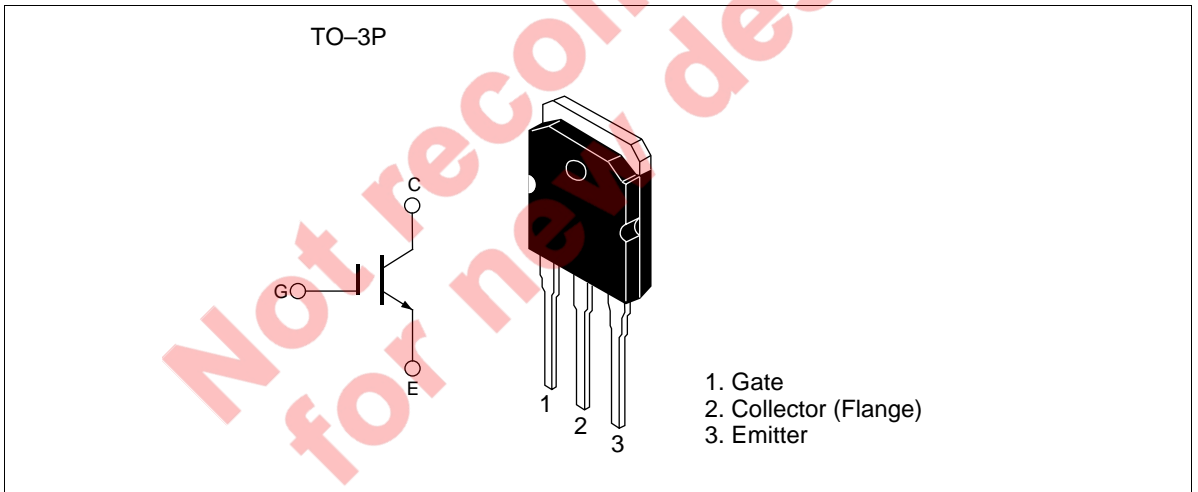
1st. Edition

May 1999

Features

- High speed switching
- Low on-voltage

Outline



Absolute Maximum Ratings (Ta = 25°C)

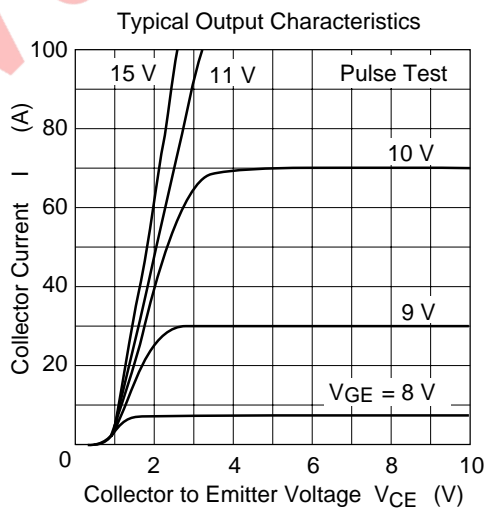
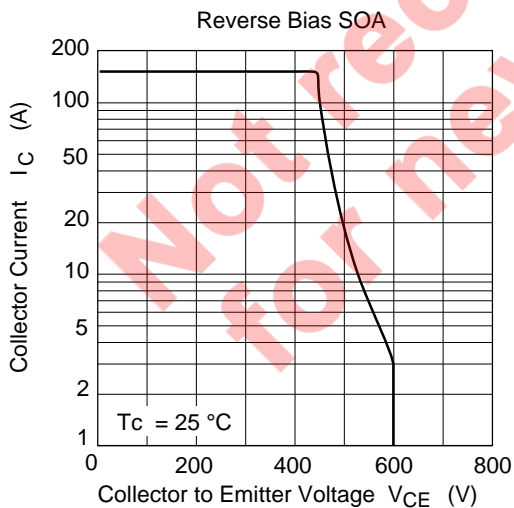
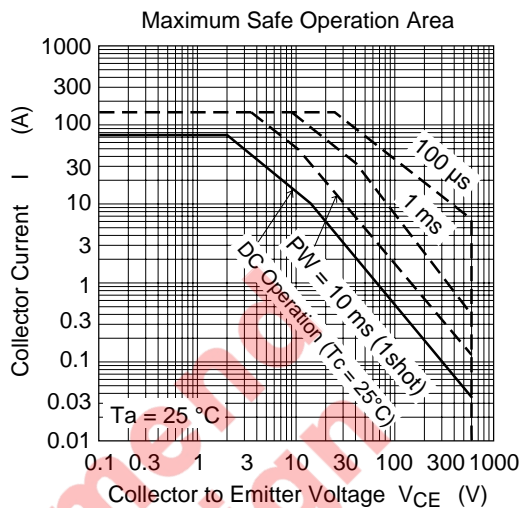
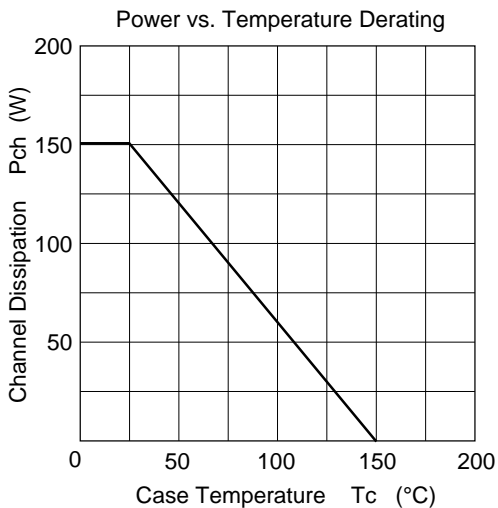
Item	Symbol	Ratings	Unit
Collector to Emitter voltage	V_{CES}	600	V
Gate to Emitter voltage	V_{GES}	± 20	V
Collector current	I_C	75	A
Collector peak current	$i_c(\text{peak})$	150	A
Collector dissipation	P_C^{Note1}	150	W
Channel temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

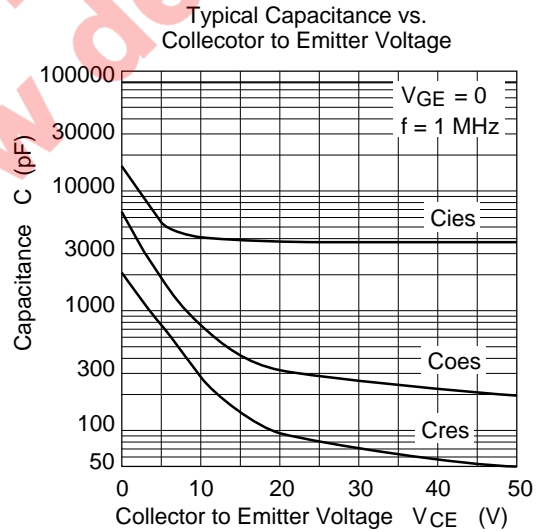
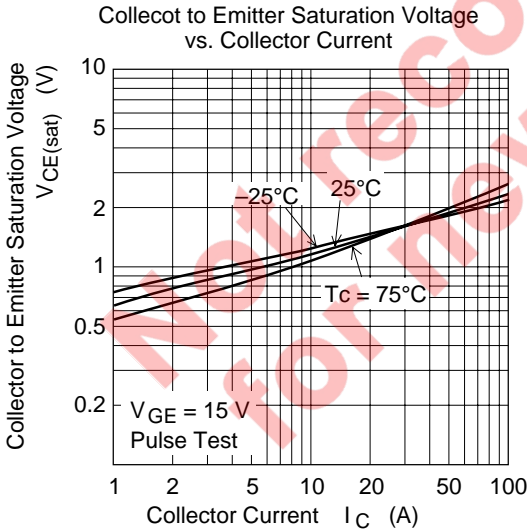
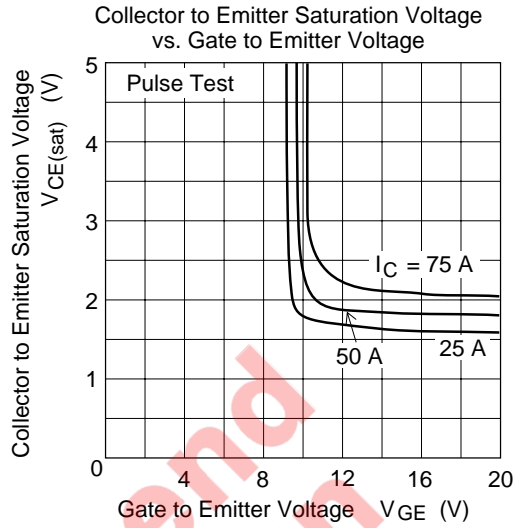
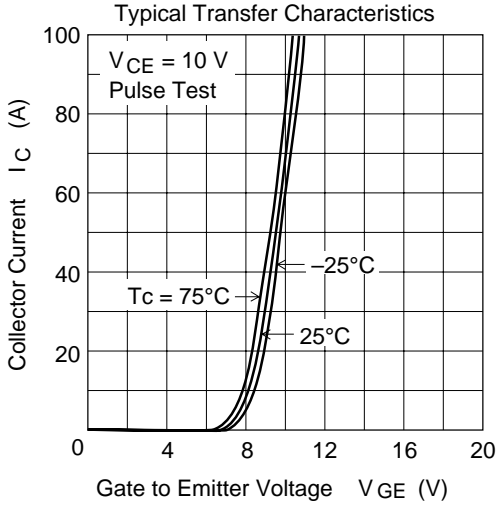
Note: 1. Value at $T_c = 25^\circ\text{C}$

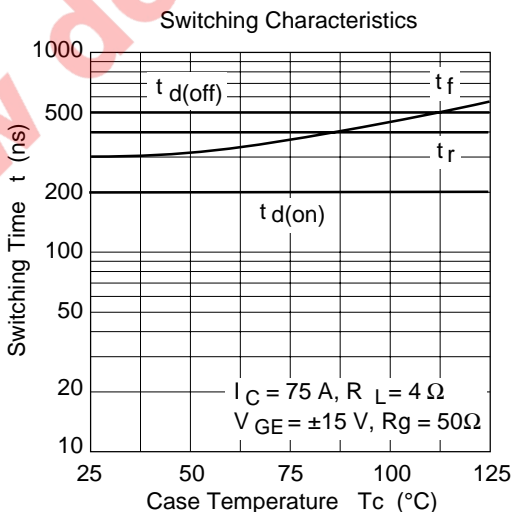
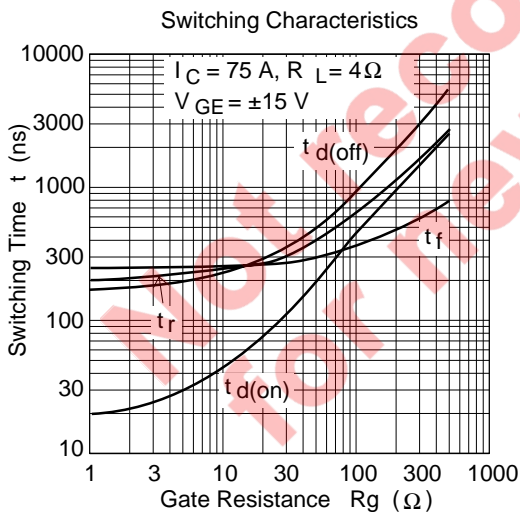
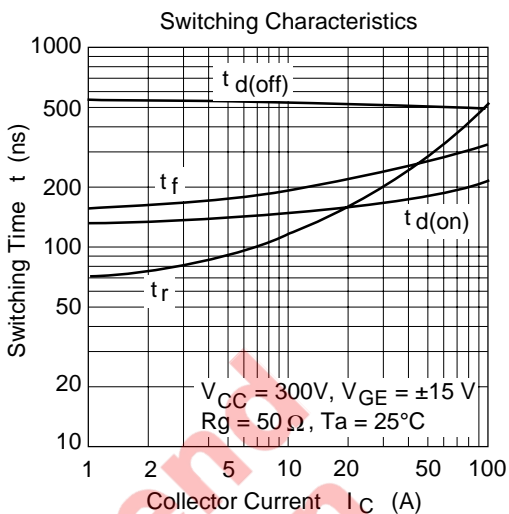
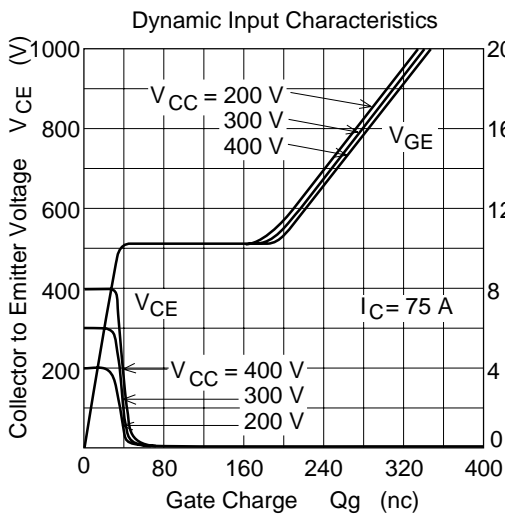
Electrical Characteristics (Ta = 25°C)

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	$V_{GE} = \pm 20\text{V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(\text{off})}$	6.0	—	8.0	V	$I_C = 75\text{mA}, V_{CE} = 10\text{V}$
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	2.1	2.6	V	$I_C = 75\text{A}, V_{GE} = 15\text{V}$
Input capacitance	C_{ies}	—	4100	—	pF	$V_{CE} = 10\text{V}, V_{GE} = 0$ $f = 1\text{MHz}$
Switching time	t_r	—	400	—	ns	$I_C = 75\text{A}$
	t_{on}	—	600	—	ns	$R_L = 4\ \Omega$
	t_f	—	300	600	ns	$V_{GS} = \pm 15\text{V}$
	t_{off}	—	800	1600	ns	$R_g = 50\ \Omega$

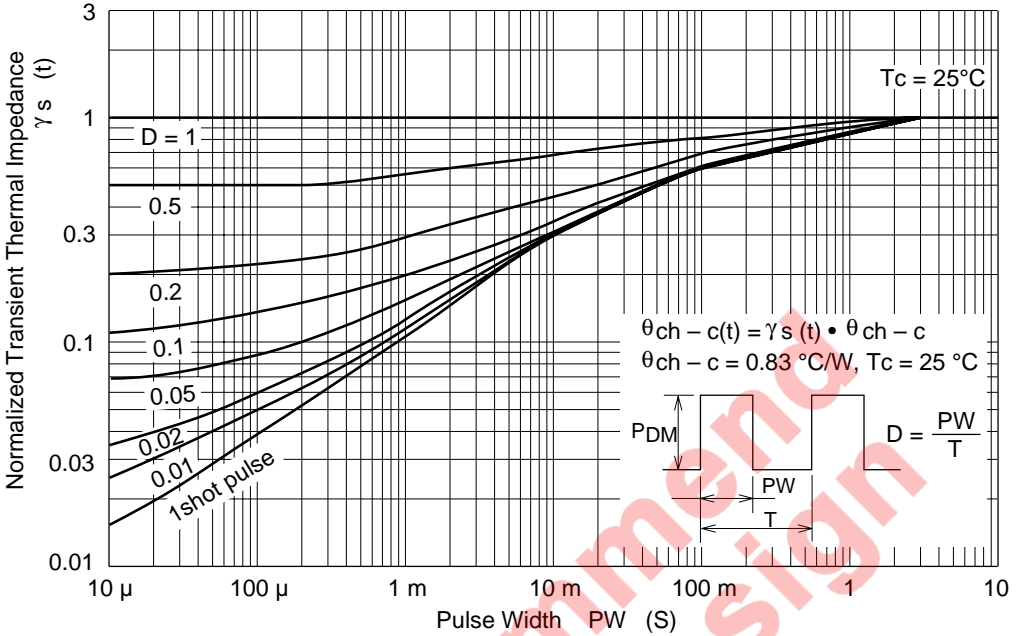
Main Characteristics



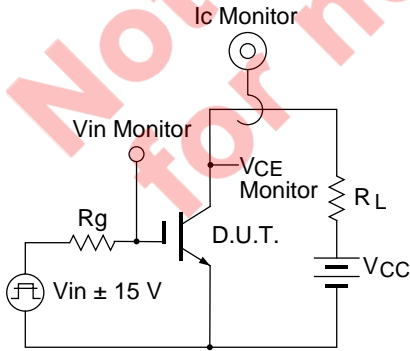




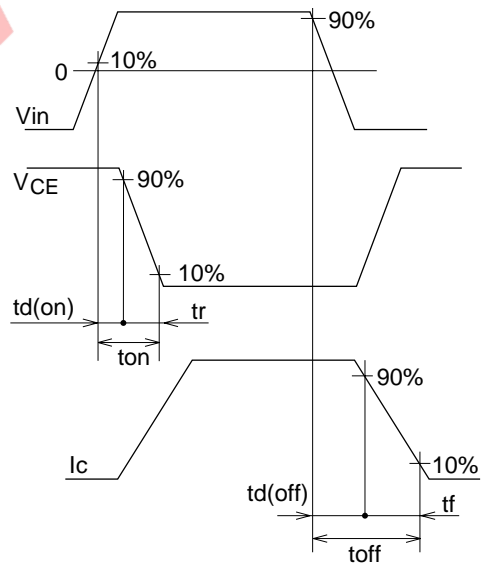
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

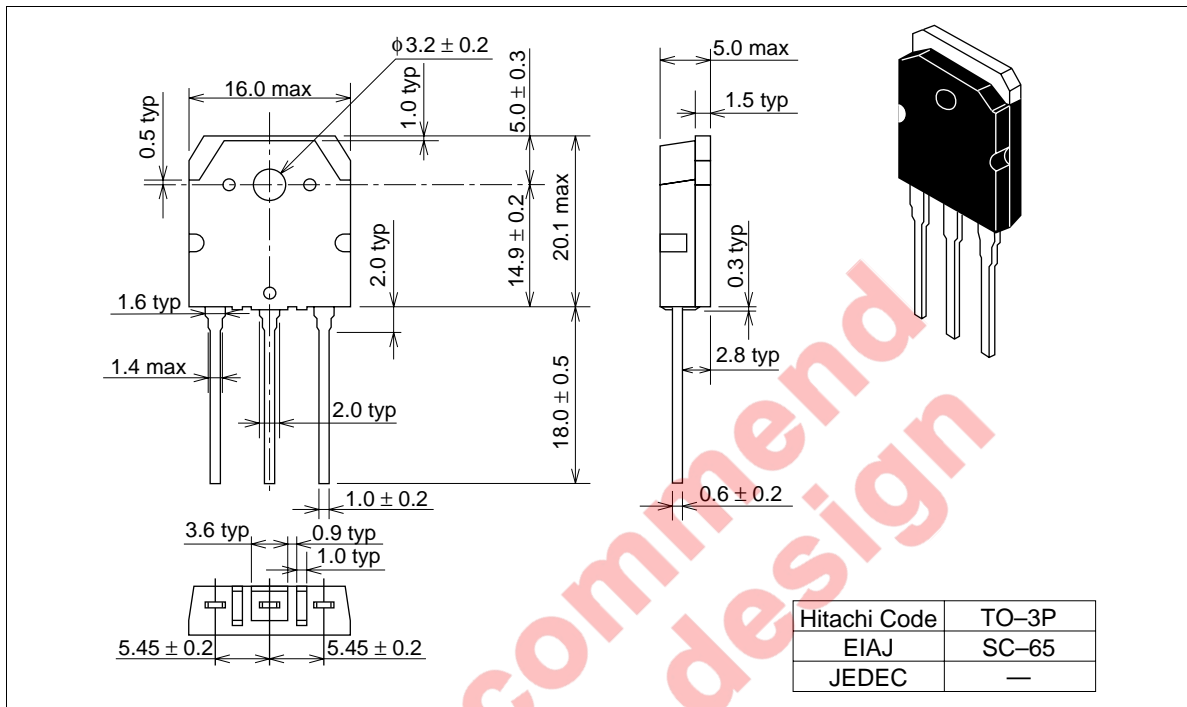


Waveform



Package Dimensions

Unit: mm



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