

To all our customers

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

Cautions

Keep safety first in your circuit designs!

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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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2SH27

Silicon N Channel IGBT High Speed Power Switching

RENESAS

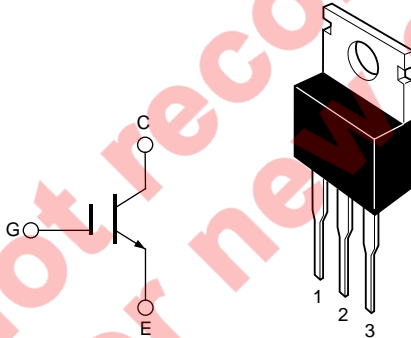
ADE-208-789A(Z)
2nd. Edition
May 1999

Features

- High speed switching
- Low on-voltage

Outline

TO-220AB



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

Absolute Maximum Ratings (Ta = 25°C)

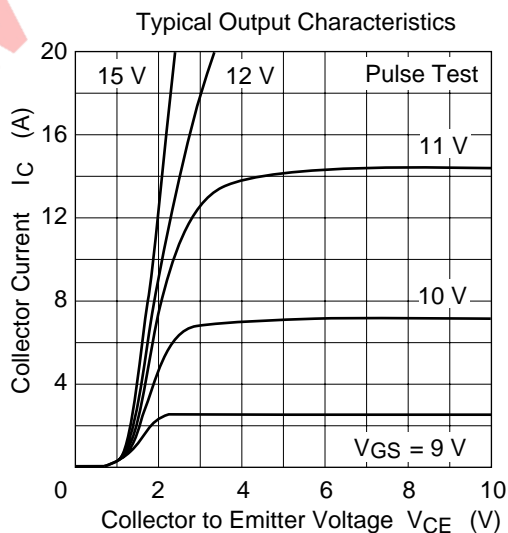
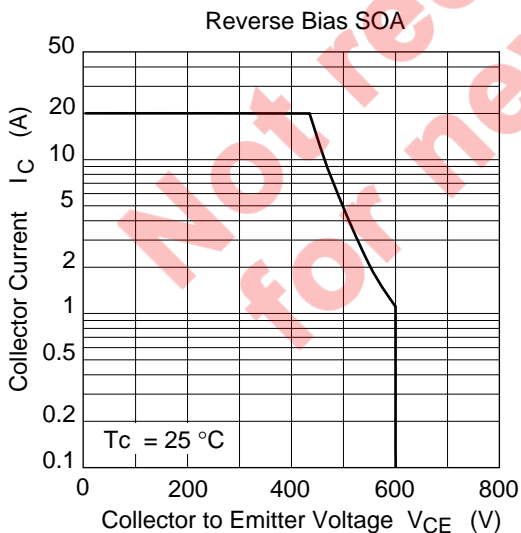
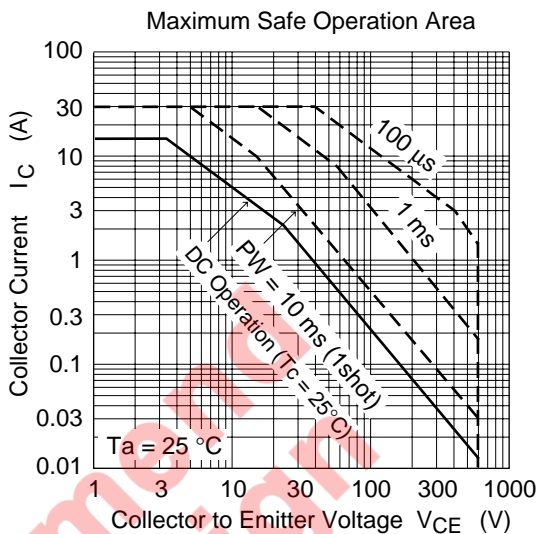
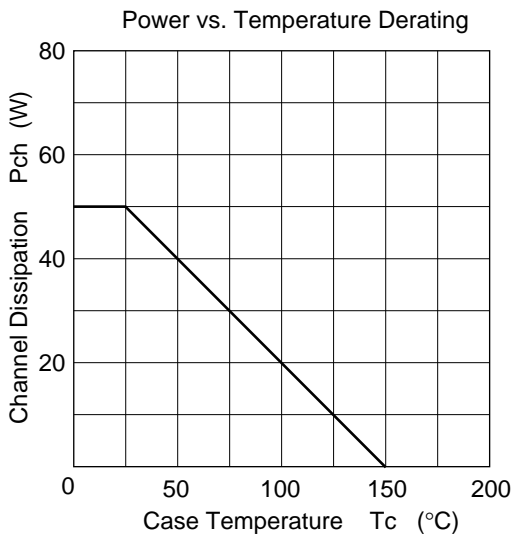
Item	Symbol	Ratings	Unit
Collector to Emitter voltage	V_{CES}	600	V
Gate to Emitter voltage	V_{GES}	±20	V
Collector current	I_C	15	A
Collector peak current	$i_c(\text{peak})$	30	A
Collector dissipation	P_C ^{Note1}	50	W
Channel temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

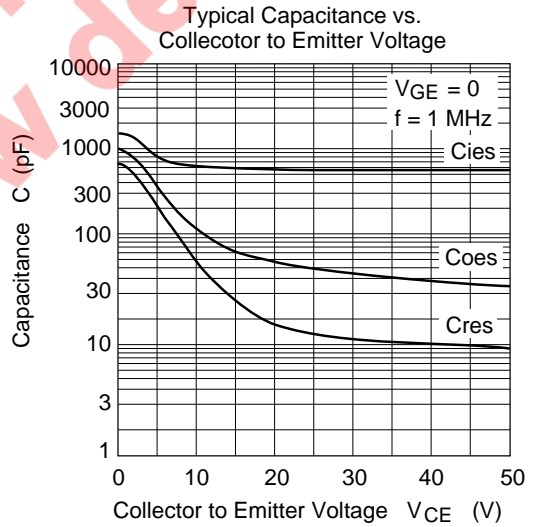
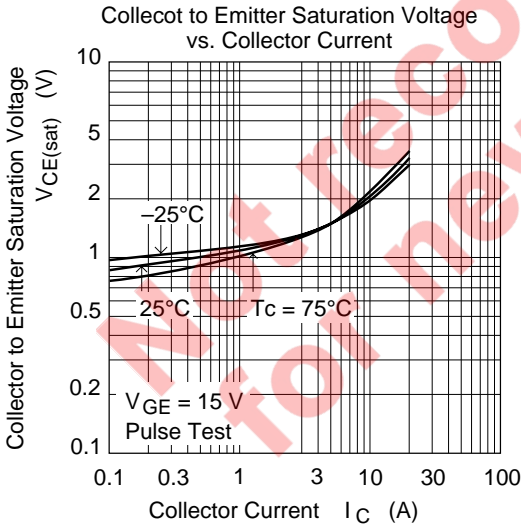
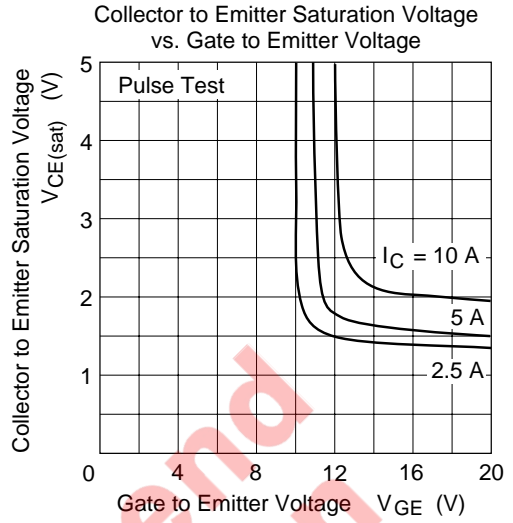
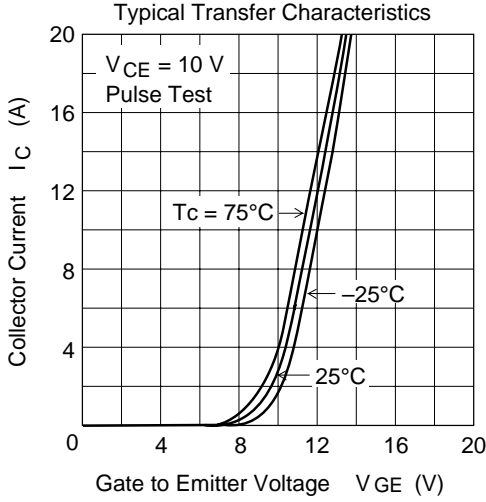
Note: 1. Value at $T_c = 25^\circ\text{C}$

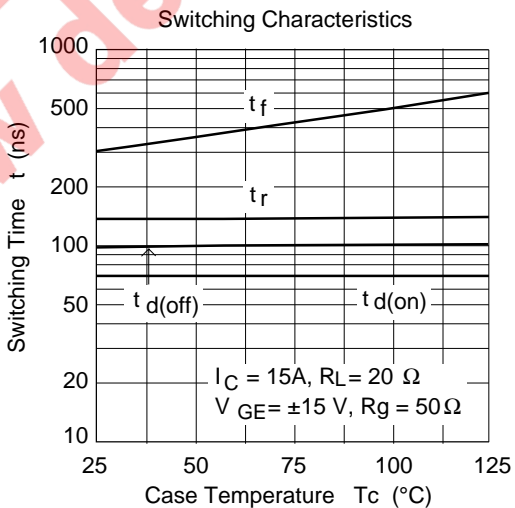
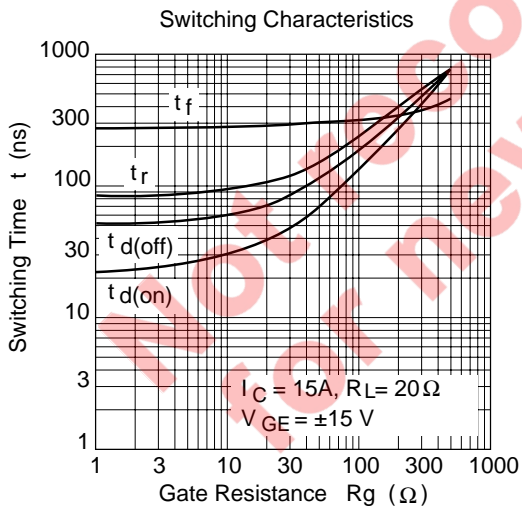
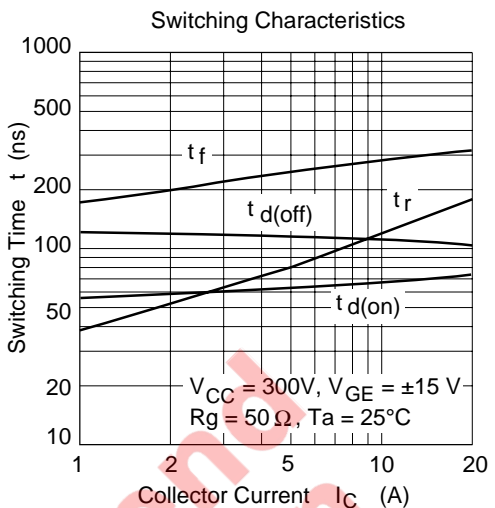
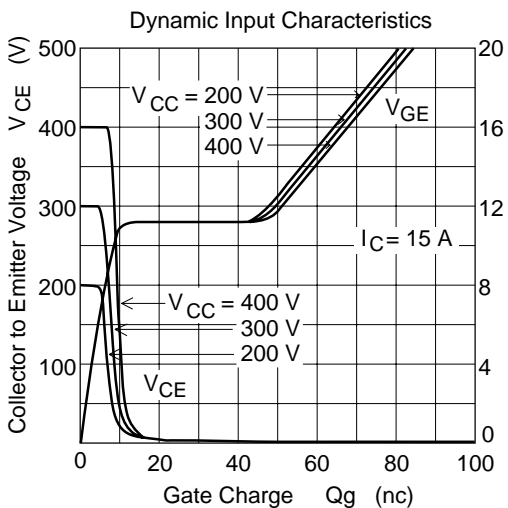
Electrical Characteristics (Ta = 25°C)

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	$I_C = 15\text{mA}, V_{CE} = 10\text{V}$
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	2.1	2.6	V	$I_C = 15\text{A}, V_{GE} = 15\text{V}$
Input capacitance	C_{ies}	—	920	—	pF	$V_{CE} = 10\text{V}, V_{GE} = 0$ $f = 1\text{MHz}$
Switching time	t_r	—	150	—	ns	$I_C = 15\text{A}$
	t_{on}	—	220	—	ns	$R_L = 20\ \Omega$
	t_f	—	300	600	ns	$V_{GS} = \pm 15\text{V}$
	t_{off}	—	410	820	ns	$R_g = 50\ \Omega$

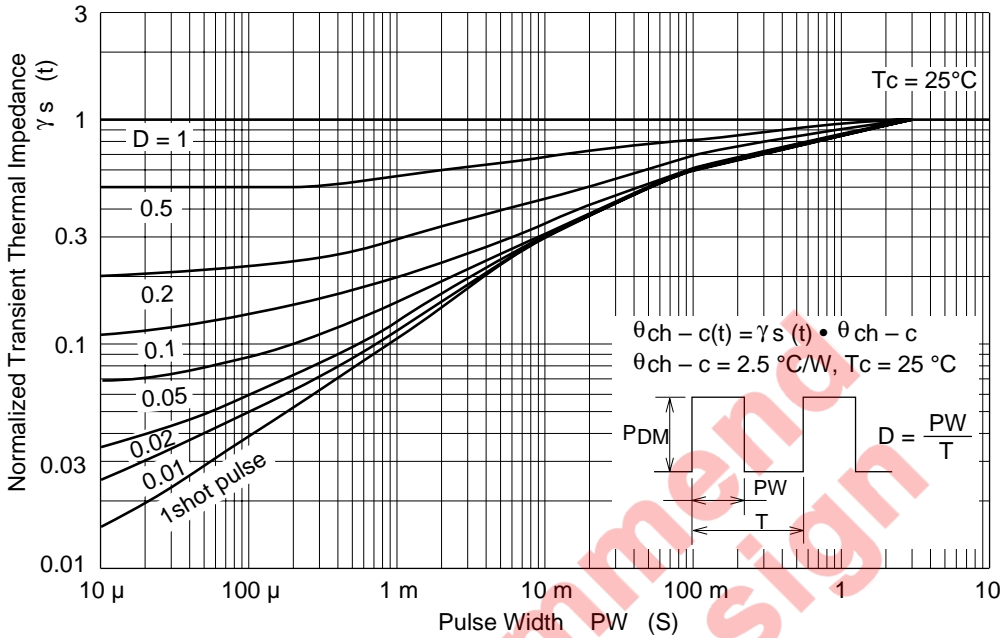
Main Characteristics



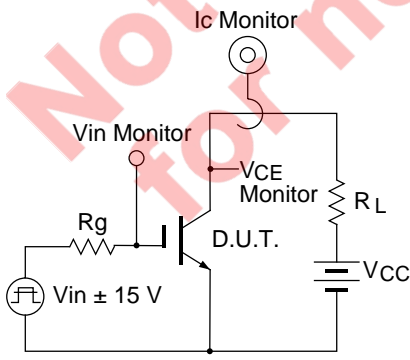




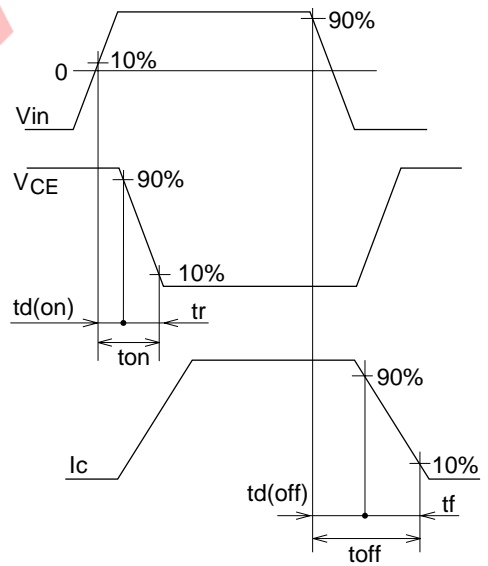
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

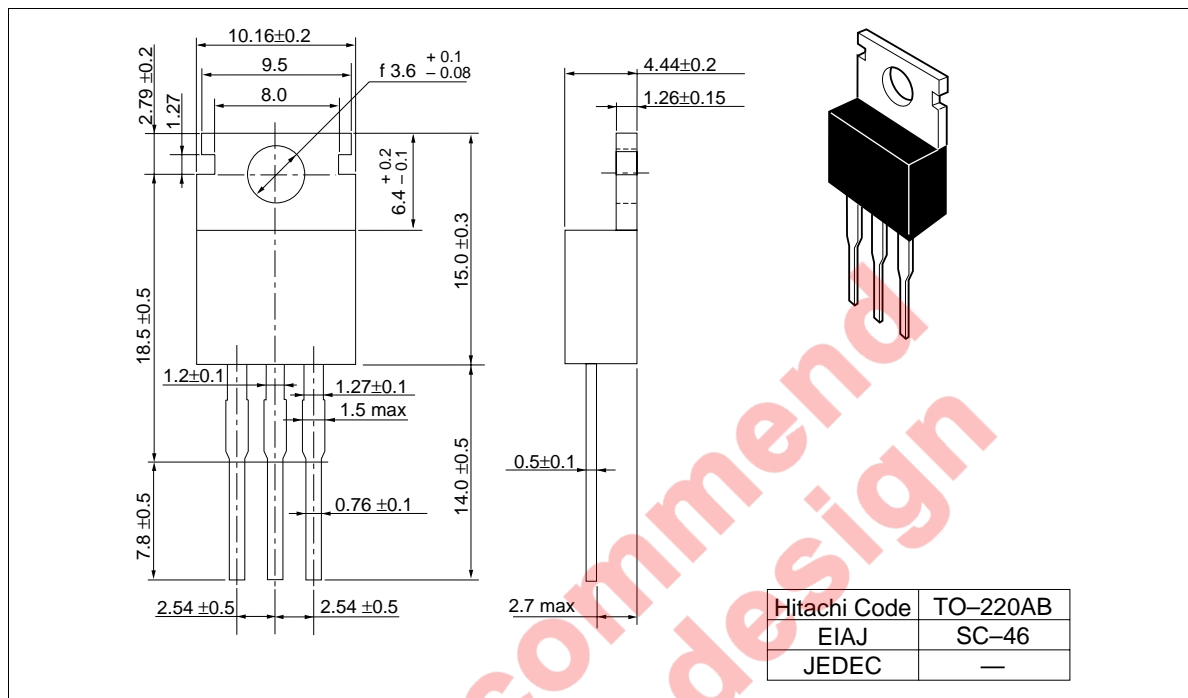


Waveform



Package Dimensions

Unit: mm



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