

2SH30

Silicon N Channel IGBT
High Speed Power Switching

HITACHI

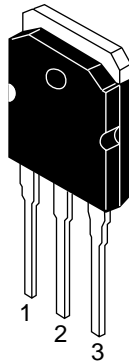
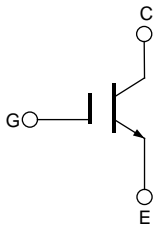
ADE-208-792A(Z)
2nd. Edition
May 1999

Features

- High speed switching
- Low on-voltage

Outline

TO-3P



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

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

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	$i_{c(\text{peak})}$	100	A
Collector dissipation	P_C ^{Note1}	100	W
Channel temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

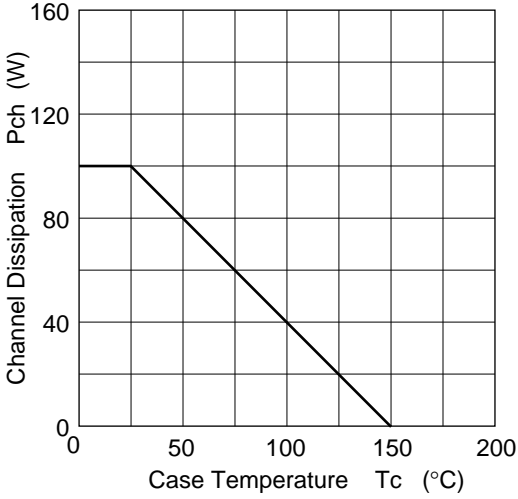
Note: 1. Value at $T_c = 25^\circ\text{C}$

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

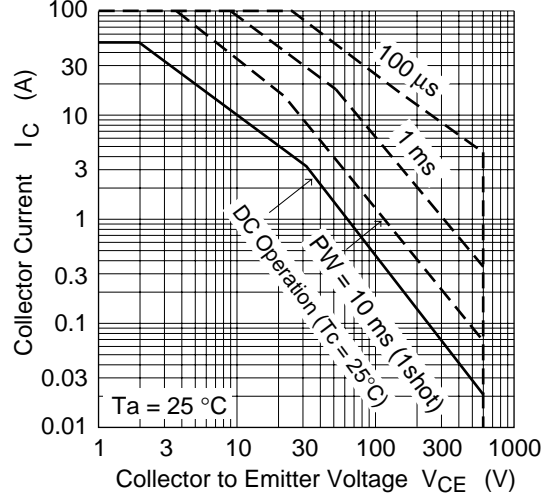
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	250	μA	$V_{CE} = 600\text{V}, V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 20\text{V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(\text{off})}$	6.0	—	8.0	V	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	2.1	2.6	V	$I_C = 50\text{A}, V_{GE} = 15\text{V}$
Input capacitance	C_{ies}	—	2800	—	pF	$V_{CE} = 10\text{V}, V_{GE} = 0$ $f = 1\text{MHz}$
Switching time	t_r	—	280	—	ns	$I_C = 50\text{A}$
	t_{on}	—	430	—	ns	$R_L = 6\ \Omega$
	t_f	—	300	600	ns	$V_{GS} = \pm 15\text{V}$
	t_{off}	—	650	1300	ns	$R_g = 50\ \Omega$

Main Characteristics

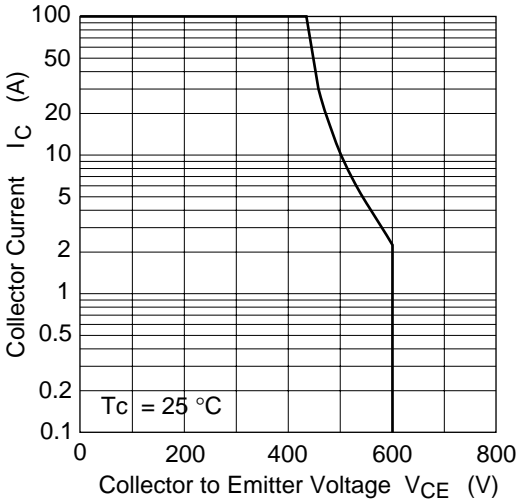
Power vs. Temperature Derating



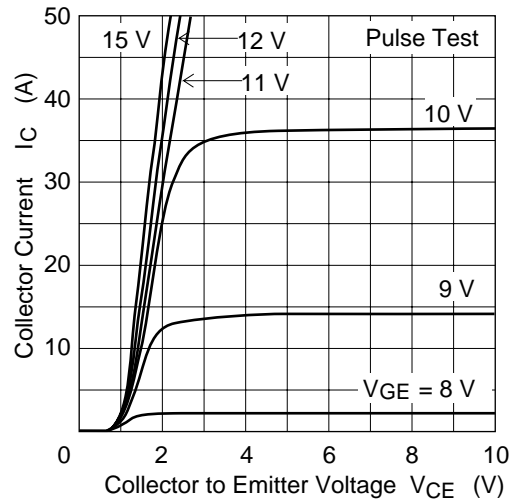
Maximum Safe Operation Area

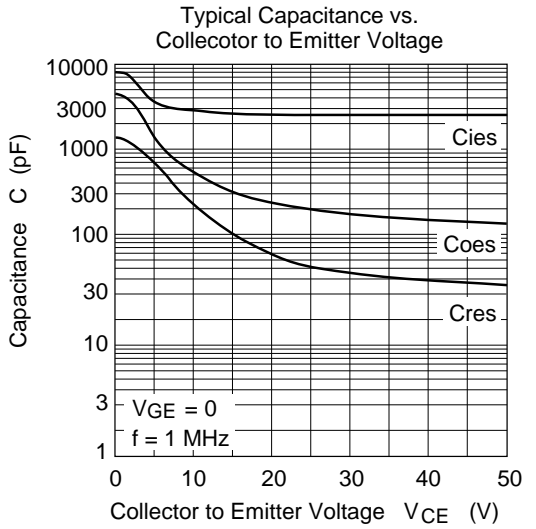
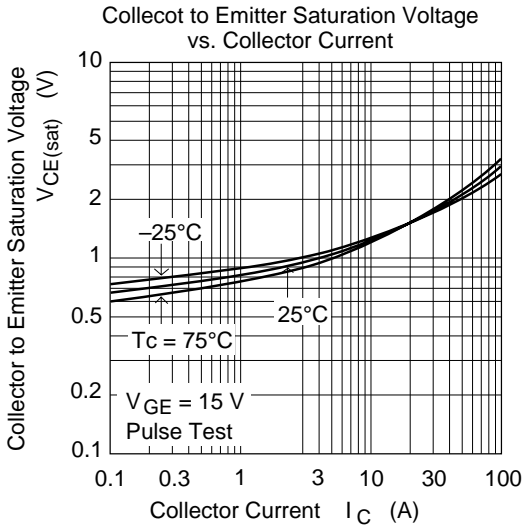
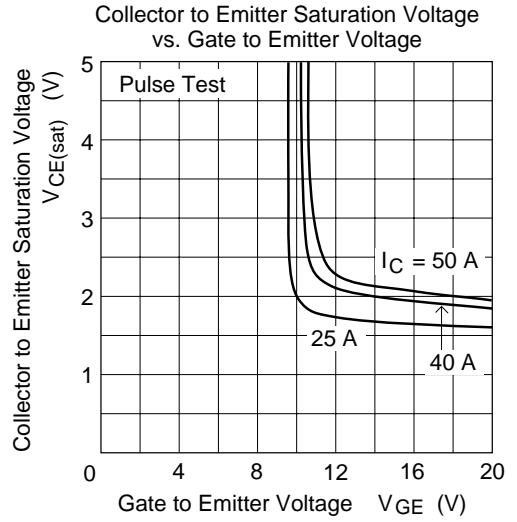
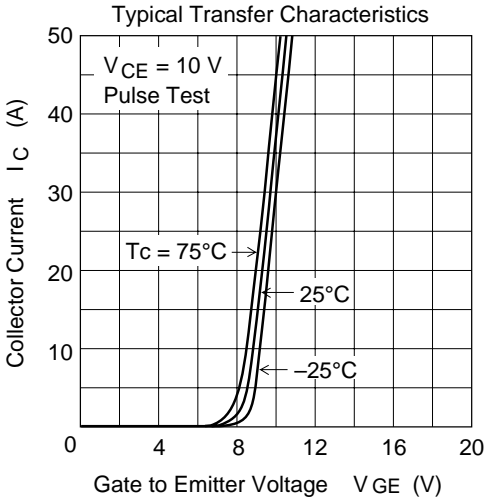


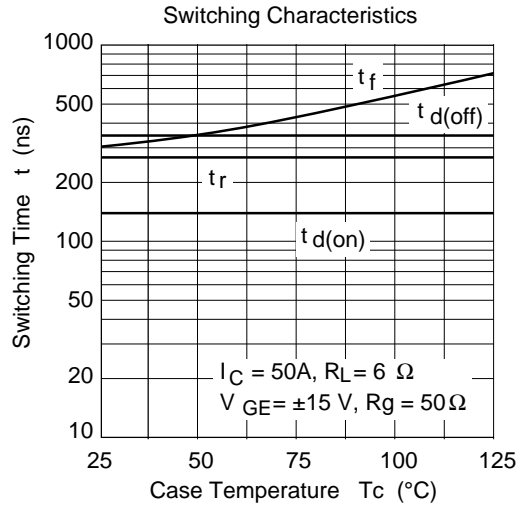
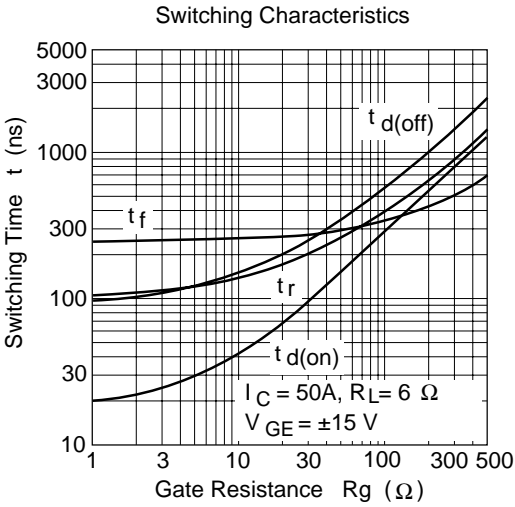
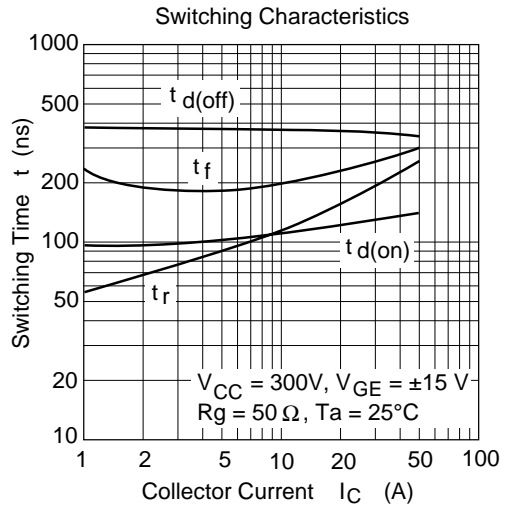
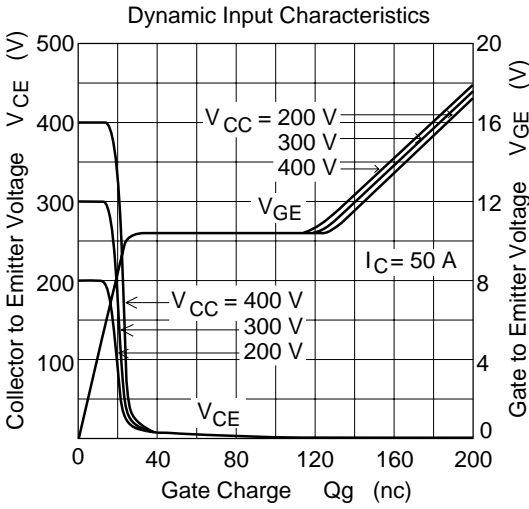
Reverse Bias SOA



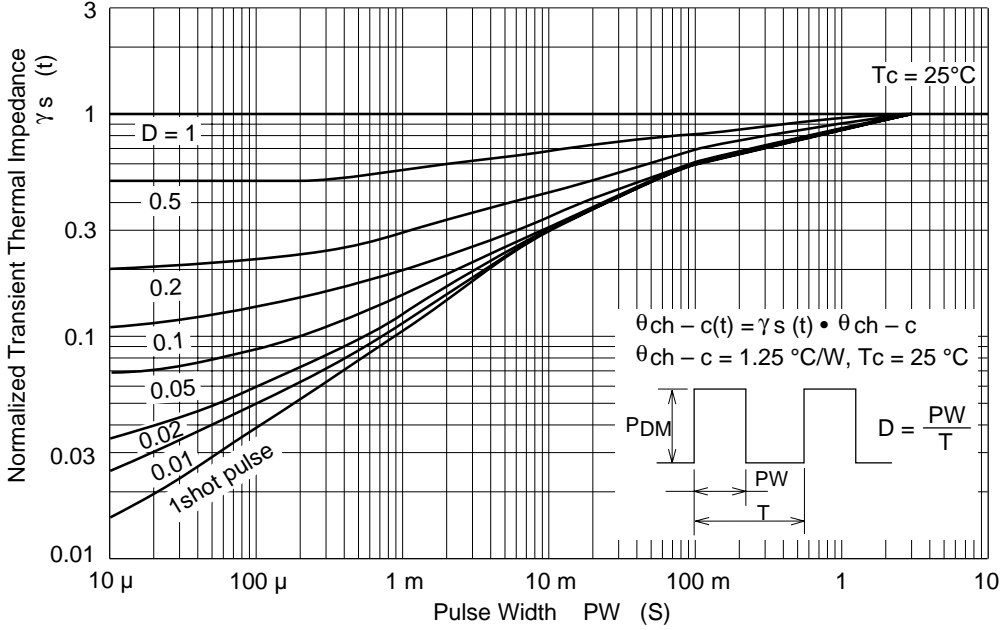
Typical Output Characteristics



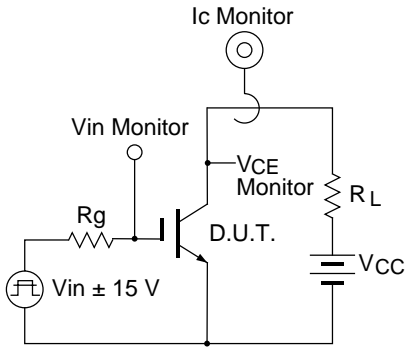




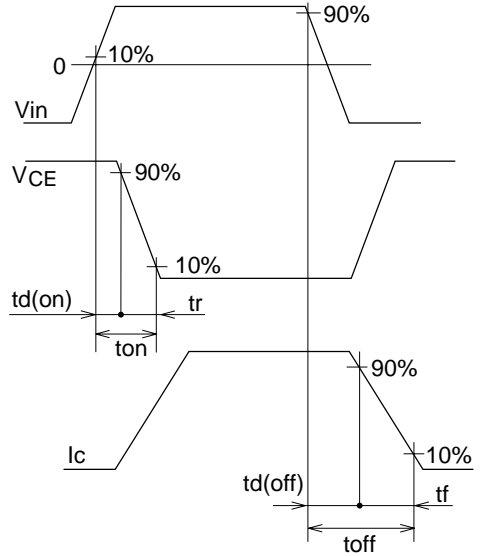
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

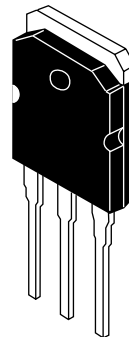
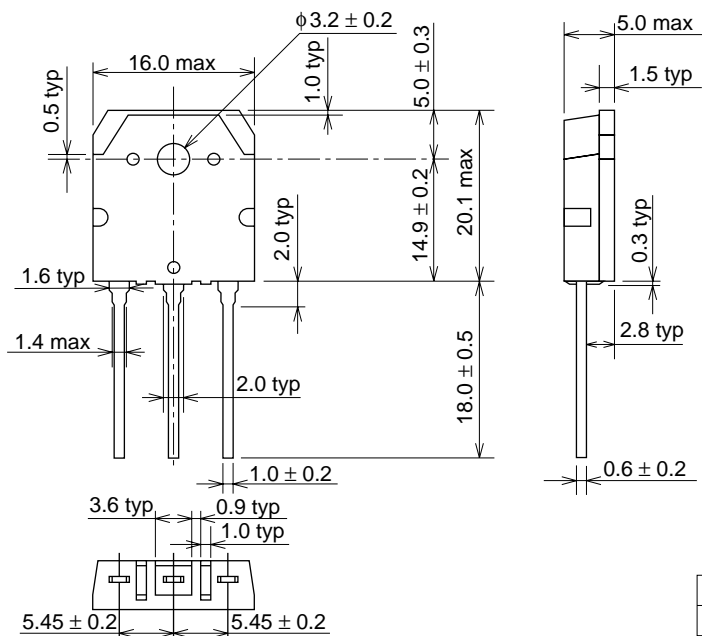


Waveform



Package Dimensions

Unit: mm



Hitachi Code	TO-3P
EIAJ	SC-65
JEDEC	—

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