
2SH31

Silicon N Channel IGBT
High Speed Power Switching

HITACHI

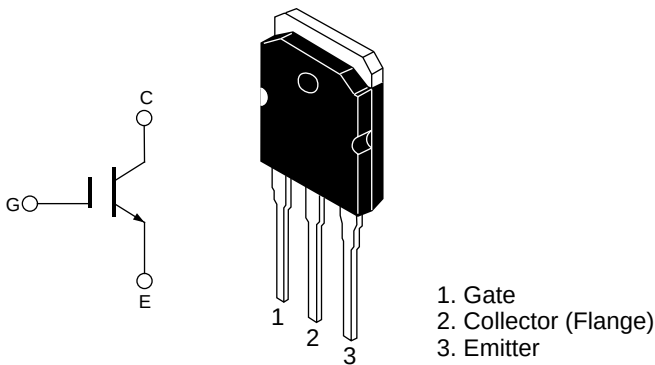
ADE-208-793(Z)
1st. Edition
May 1999

Features

- High speed switching
- Low on-voltage

Outline

TO-3P



Absolute Maximum Ratings (Ta = 25°C)

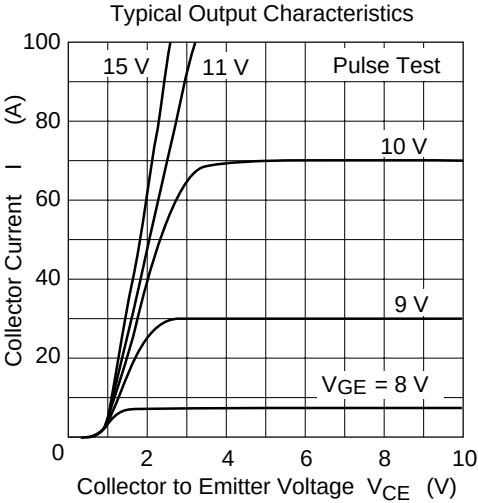
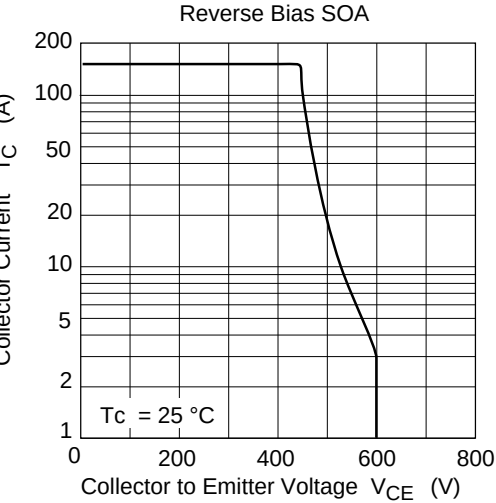
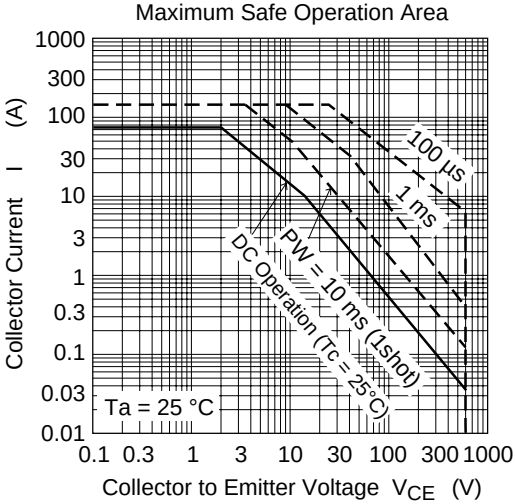
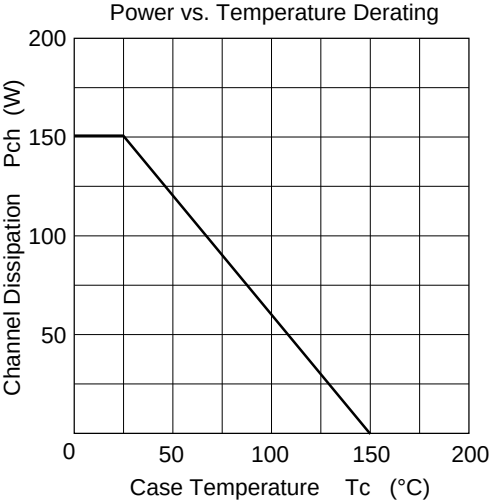
Item	Symbol	Ratings	Unit
Collector to Emitter voltage	V _{CES}	600	V
Gate to Emitter voltage	V _{GES}	±20	V
Collector current	I _C	75	A
Collector peak current	ic(peak)	150	A
Collector dissipation	P _C ^{Note1}	150	W
Channel temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

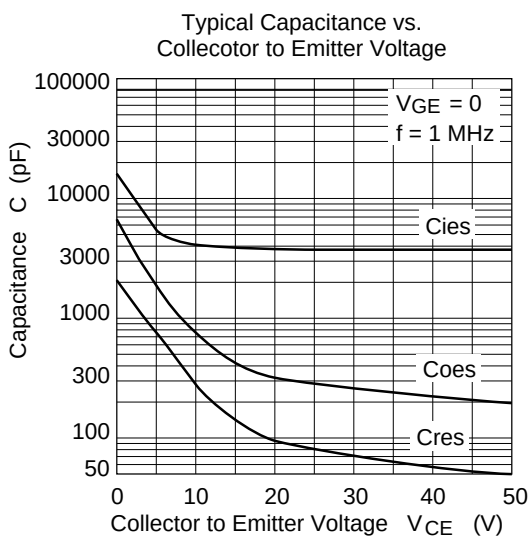
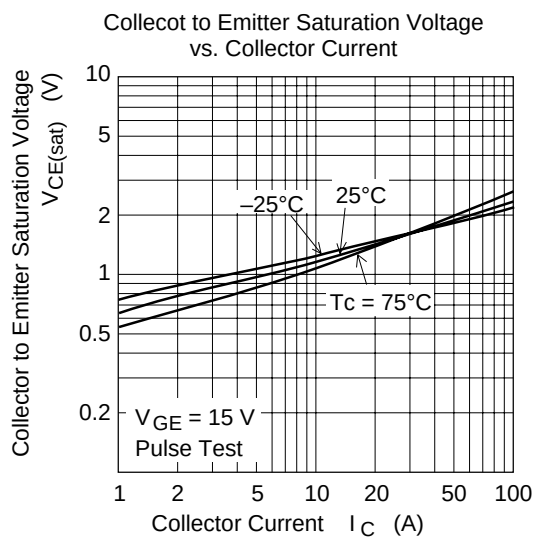
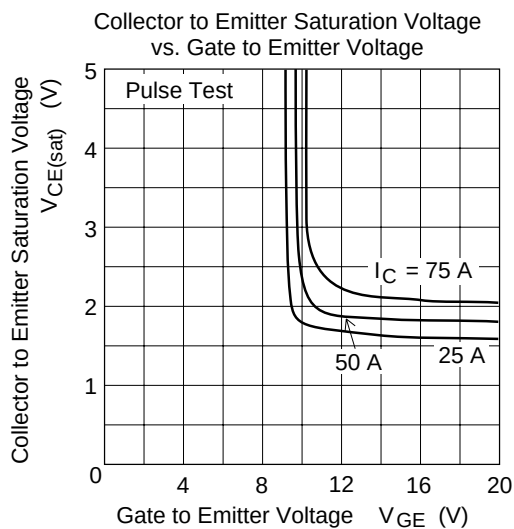
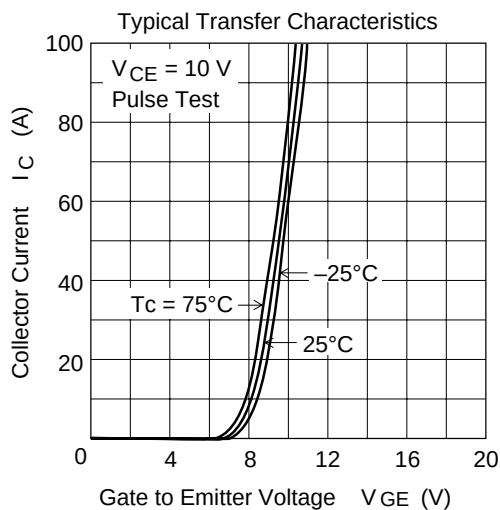
Note: 1. Value at Tc = 25°C

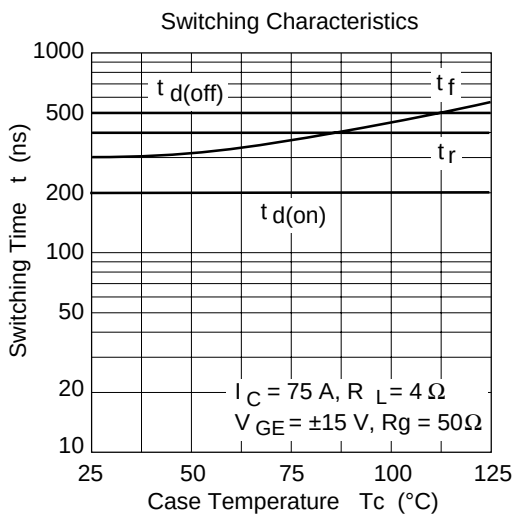
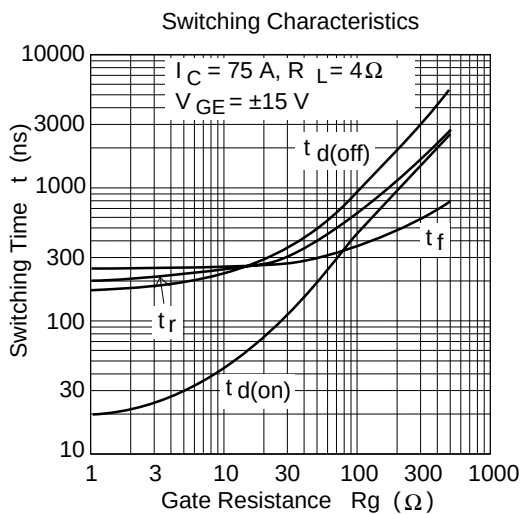
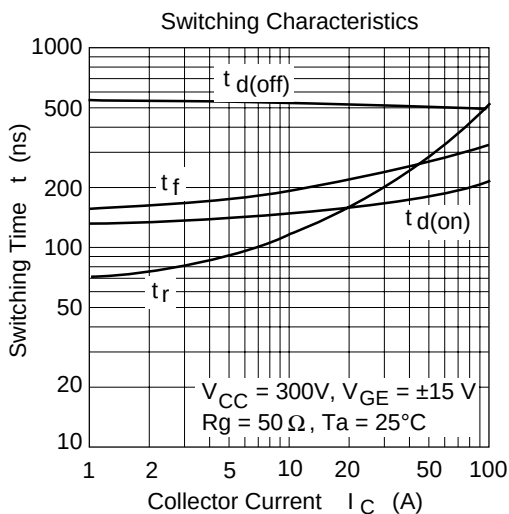
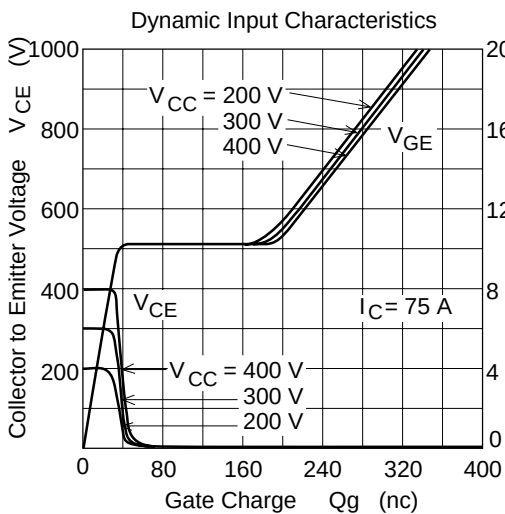
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I _{CES}	—	—	100	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 = 75mA, V _{CE} = 10V
Collector to emitter saturation voltage	V _{CE(sat)}	—	2.1	2.6	V	I _C = 75A, V _{GE} = 15V
Input capacitance	Cies	—	4100	—	pF	V _{CE} = 10V, V _{GE} = 0 f = 1MHz
Switching time	t _r	—	400	—	ns	I _C = 75A
	t _{on}	—	600	—	ns	R _L = 4 Ω
	t _f	—	300	600	ns	V _{GS} = ±15V
	t _{off}	—	800	1600	ns	Rg = 50 Ω

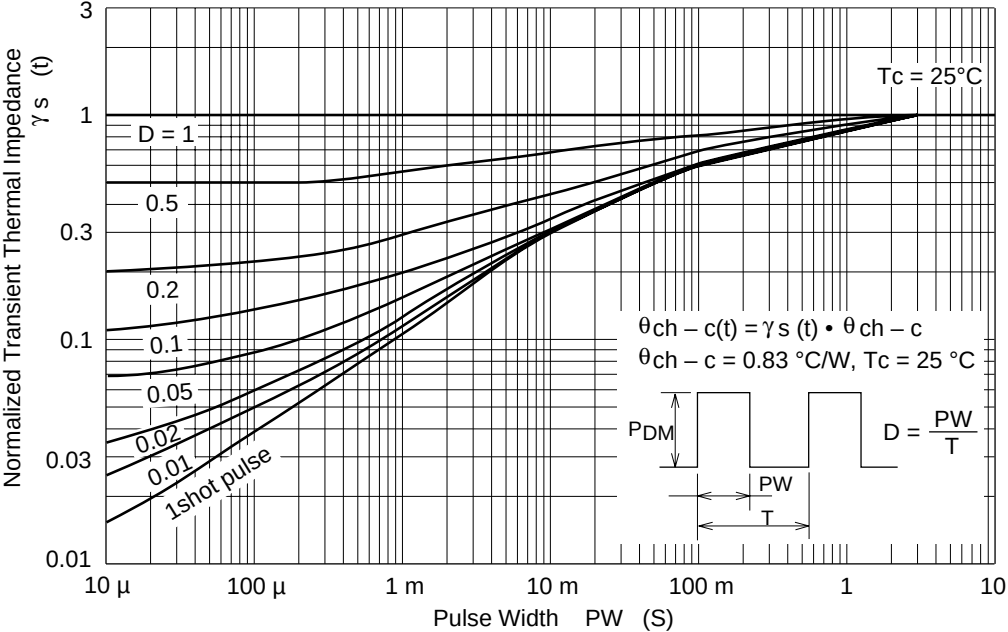
Main Characteristics



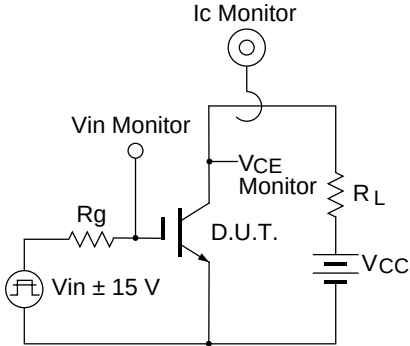




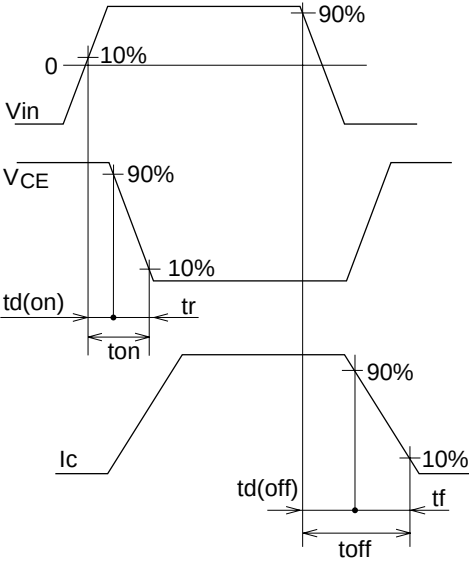
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

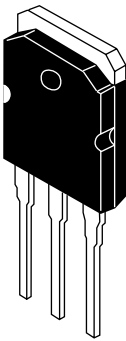
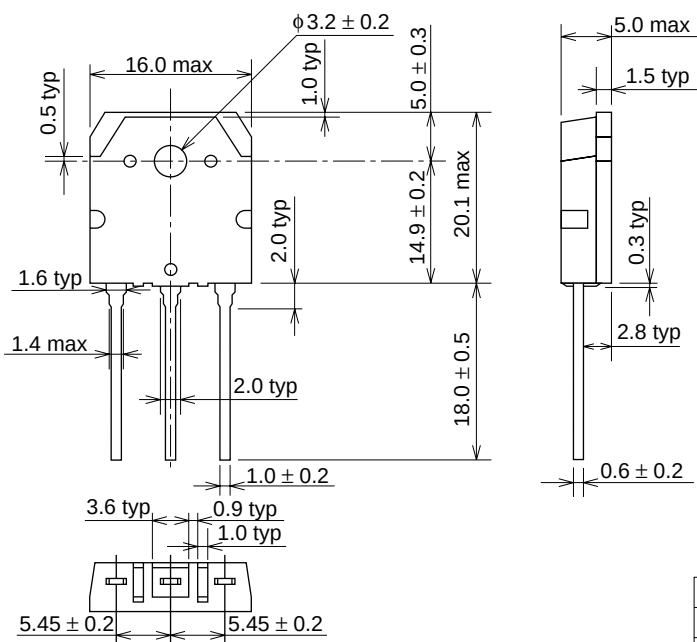


Waveform



Package Dimensions

Unit: mm



Hitachi Code	TO-3P
EIAJ	SC-65
JEDEC	—

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