



‘ IGCT ’

()

가

IGCT

(Medium-voltage Level) 가

ABB가
IGBT

GTO

GTO(Gate
Turn-Off) Thyristor IGBT(Insulated Gate
Bipolar Transistor)가

1, 2)

2.3, 3.3, 4, 16, 6.6 kV

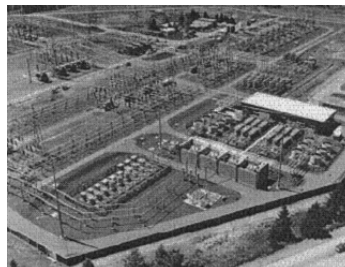
가

GTO

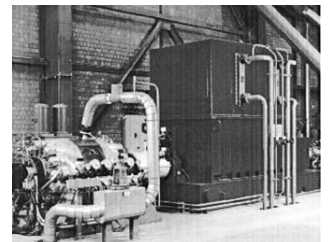
. IGBT

가

. ABB IGCT(Integrated
Gate Commutated Thyristor)
GTO IGBT



1.



2. IGCT

(Static compensators)

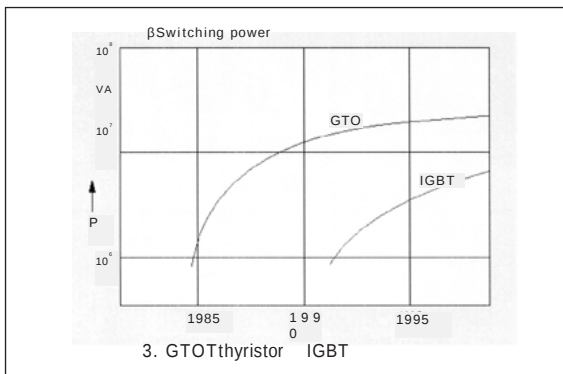
ABB GTO IGBT

(3).
IGBT GTO

IGCT(Integrated Gate Commutated
Thyristor) GTO
IGBT

GTO (Wafer)

47가 (On,
Off, Switching On, Switching Off)
GTO On
Turn-off
(Non-homogeneous)
(Snubber) 가



, IGBT (On)
(Homogeneous)
가 , IGBT

IGBT가

가
, 4.16kV
4 1.8kV IGBT가
가
GTO 가

3.3kV ,
4.16kV IGBT가

30

(SCR,
Silicon-Controlled Rectifier) AC
(Switch Power Off)
(.). GTO
(On/Off) . IGBT

IGBT
GTO 가
GTO
IGCT가

.(1)

1 : GTO Thyristor IGBT IGCT Technology			
	GTO Thyristor	High-voltage IGBT	IGCT Advantages
Switching Technology	On-	(Snubberless)	& On- (Snubberless)
		가 /	가 /
		(Modular design)	(Modular design) (Application-ready eadModules)

IGCT

IGCT , GTO

On / Off

Layer)

2~2.5

(Factor)

(Diode) GTO

(Doping Profile)

GTO

가

GTO

(Conducting Phase)

(Turn-Off)

GTO

(Electron)

(Anode)

(Holding) (Trigger)

(Electron)가 (Permeable)

(Transparent)

가 가 GTO

Control) . GTO (Gate

(Four-layer, npnp)

(Stable-point)-On Off- 가

(Filamentation)

가

가

GTO

가 , GTO -

npn (,

) . 가

(Cathode, n)

(Junction)

(Bias)

1

p)

(n)

(Commutation)

(Low Inductive

Housing)

20V

(Filament)

, 4,000 A/ μ s가

(, IGBT)

GTO

가

IGCT

ABB

ABB

IGBT

(1)

가 가

가

250Hz

IGCT
(GCT)

(Freewheeling

IGCT

4

Diode, Gate Drive)

(4). 4

5, 6b)

4

(

가

IGCT

(2)

GCT

6

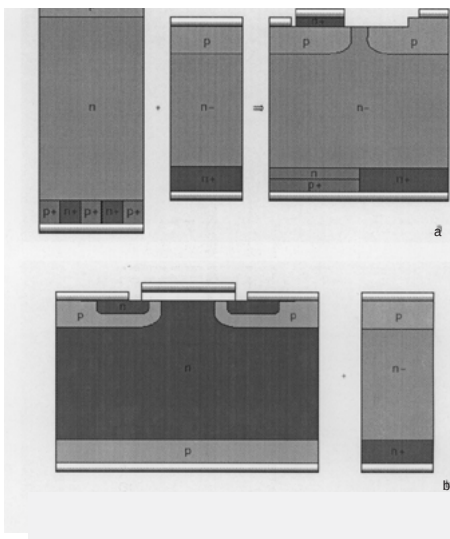
가

IGCT

(Snubberless)

가 가

, IGCT



4. 가

GCT IGBT

GCT IGBT

a. GTO Thyristor() Diode() GCT()

GCT (Emitter) (Buffer)
(Layer)가 n-base Layer

(Freewheeling Diode)

(Low Inductive Packaging)

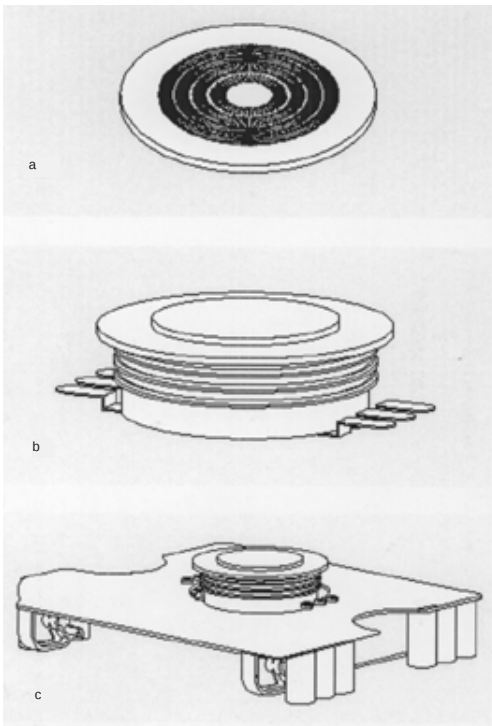
Snubberless

가

b. IGBT() Diode()
IGBT (Monolythic Cell)

1-2 cm MOS IGBT 가

IGBT (Blocking
Voltage) GCT



a. Gate Communicated Thyristor (GCT)

· GCT Diode (Wafer) / 가

(Wafer) GCT Diode
On- 가
가

b. Packed GCT

(Low Inductive Housing) GCT

(Press-pack)

(Press-pack)

c.

GCT

5. IGCT Technology

4

(a, b, c & 6b).

4

IGCT Stack(6b)

GCT GTO 가 IGBT
(Freewheeling GCT (Turn-off)
Diode)가 IGCT (Variation)

(Freewheeling Diode)
(Wafer) 가 GCT

가
가

CGT

50% 가

(3)
IGCT

가 30%

GCT (,)

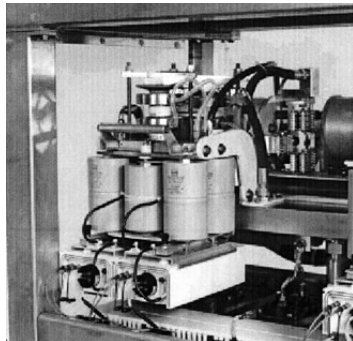
GCT GTO

(Gate Drive)

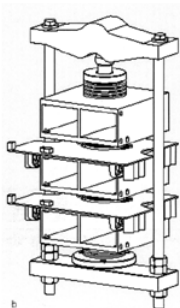
, GCT 가

IGCT

(, 가 가 .)



a. GTO Thyristor Converter



b. IGCT Converter, IGCT IGCT

6. GTO Thyristor Converter IGCT Converter IGCT Technology

(4)

가 가

, IGCT 가

(Homogeneous Switching)

IGCT

(Spare Parts)

IGCT

IGCT $2 \mu s$ ()

- (Turn-off)

, IGCT

IGCT , 가

100MW

가 . IGCT

IGCT

()

· Utility Intertied

(Static Var Compensators)

· Power Flow Controller

· 6.9kV

&

(Marine Drive)

· Transformerless Traction Supplies

(Rocomotive Drives)

· 가 (Induction Heating

Resonant Inverter)

· (Static Breaker)

IGCT

ABB

ABB

ACS1000
Fan, Pump

IGCT

IGCT

ACS1000

가

가

, GTO Thyristor, IGBT, IGCT,
IGCT 가

가

IGCT

ACS1000 Series

IGCT

ABB

/

ACS1000 Series(7)

300 가

9 가

6 가 가

ACS1000 Series

2.3~4.16kVac, 315~5000kW
(Medium Voltage Inverter)

. ABB

IGCT((Insulated Gate
Commutated Thyristor)

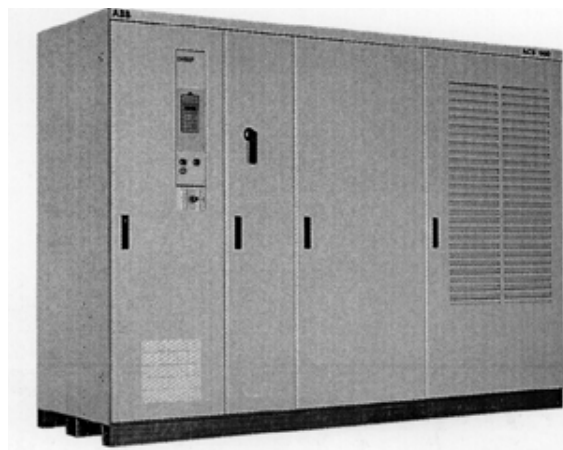
. ACS1000 IGCT

DTC(Direct Torque Control)

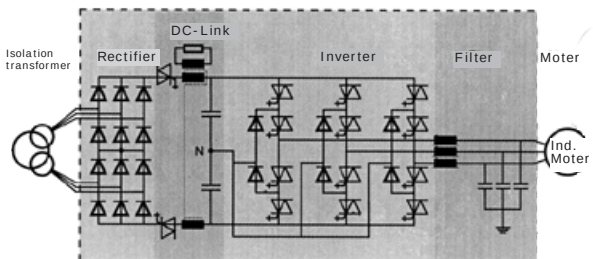
, 12 Pulse Input, NPC(3-level)
Switching, Common DC Reactor, Output
Sine Filter(8)

Sine Filter

가 /



IGCT
ACS1000 Serise



IGCT
ACS1000 Serise