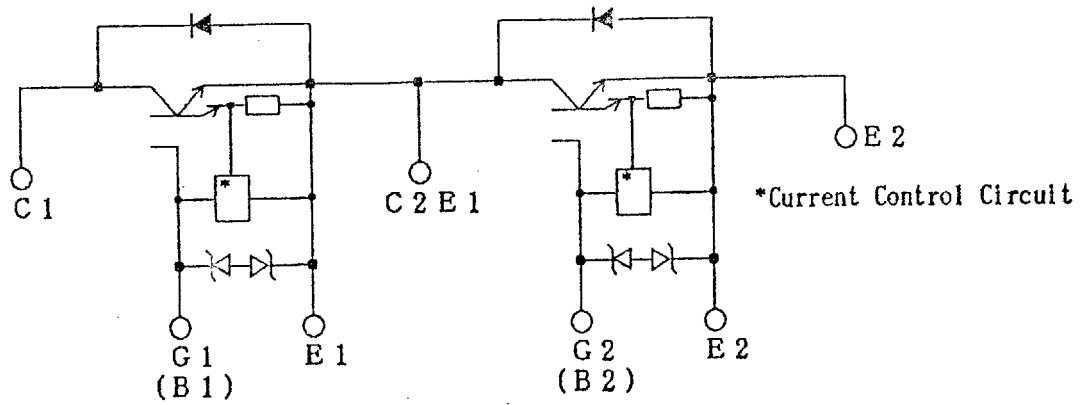




## 2. Equivalent Circuit



## 3. Absolute Maximum Ratings (T<sub>j</sub>=25 °C)

Items		Symbols	Ratings	Units
Collector-emitter voltage		V <sub>CEs</sub>	6 0 0	V
Gate-emitter voltage		V <sub>GES</sub>	± 2 0	V
Collector current	Continuous	I <sub>c</sub>	1 0 0	A
	1 ms	I <sub>c</sub> pulse	2 0 0	
		-I <sub>c</sub>	1 0 0	
	1 ms	-I <sub>c</sub> pulse	2 0 0	
Max.power dissipation		P <sub>C</sub>	3 0 0	W
Operating temperature		T <sub>j</sub>	+ 1 5 0	°C
Storage temperature		T <sub>stg</sub>	-40 ~ +125	°C
Isolation voltage		V <sub>is</sub>	AC 2500 (1 min)	V
Screw Torque		Mounting * 1	3. 5	N · m
		Terminals * 1	3. 5	

Note : \*1 Recommendable Value : 2.5 ~ 3.5 N · m (M5)

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4. Static electrical characteristics ( at  $T_j=25^\circ\text{C}$  unless otherwise specified )

Items	Symbols	Characteristics			Conditions		Units
		min.	typ.	max.			
Zero gate voltage collector current	$I_{CES}$			1.0	$T_j = 25^\circ\text{C}$	$V_{GE} = 0\text{V}$	mA
					$T_j = 125^\circ\text{C}$	$V_{CE} = 600\text{V}$	mA
Gate-emitter leakage current	$I_{GES}$			15	$V_{CE} = 0\text{V}$	$V_{GE} = \pm 20\text{V}$	$\mu\text{A}$
Gate-emitter threshold voltage	$V_{GE(th)}$	3.5	5.0	6.5	$V_{CE} = 20\text{V}$	$I_C = 100\text{mA}$	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		1.7	2.5	$V_{GE} = 15\text{V}$	$I_C = 100\text{A}$	V

5. Dynamic ratings ( at  $T_j=25^\circ\text{C}$  unless otherwise specified )

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Input capacitance	$C_{ies}$		6400		$V_{GE} = 0\text{V}$	pF
Output capacitance	$C_{oes}$				$V_{CE} = 10\text{V}$	
Reverse transfer capacitance	$C_{res}$				$f = 1\text{MHz}$	
Turn-on time	$t_{on}$		0.6	1.2	$V_{CC} = 300\text{V}$ $I_C = 100\text{A}$ $V_{GE} = \pm 15\text{V}$ $R_g = 24\Omega$	$\mu\text{s}$
	$t_r$		0.2	0.6		
Turn-off time	$t_{off}$		0.8	1.5		
	$t_f$		0.15	0.35		

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6. Characteristics of reverse diode ( at  $T_j=25^\circ\text{C}$  unless otherwise specified )

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Diode forward on-voltage	V <sub>F</sub>		2.3	3.0	I <sub>F</sub> = 100A V <sub>GE</sub> = 0V	V
Reverse recovery time	t <sub>rr</sub>			300	I <sub>F</sub> = 100A -di/dt = 300A/μs	ns

7. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	R <sub>th(j-c)</sub>			0.417	IGBT	°C/W
	R <sub>th(j-c)</sub>			0.800	Diode	
	* R <sub>th(c-f)</sub>		0.05		the base to cooling fin	

\* This is the value which is defined mounting on the additional cooling fin with thermal compound.

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