

2MBI150U4H-120

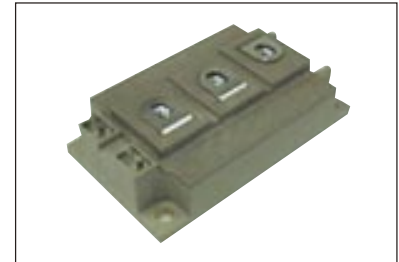
IGBT MODULE (U series) 1200V / 150A / 2 in one package

■ Features

- High speed switching
- Voltage drive
- Low Inductance module structure

■ Applications

- Inverter for Motor Drive
- AC and DC Servo Drive Amplifier
- Uninterruptible Power Supply
- Industrial machines, such as Welding machines



■ Maximum Ratings and Characteristics

● Absolute Maximum Ratings (at Tc=25°C unless otherwise specified)

Items	Symbols	Conditions	Maximum ratings	Units	
Collector-Emitter voltage	V_{CES}		1200	V	
Gate-Emitter voltage	V_{GES}		± 20	V	
Collector current	I_c	Continuous	Tc=25°C	200	A
			Tc=80°C	150	
	I_c pulse	1ms	Tc=25°C	400	
			Tc=80°C	300	
	$-I_c$			150	
$-I_c$ pulse	1ms		300		
Collector power dissipation	P_c	1 device	780	W	
Junction temperature	T_j		+150	°C	
Storage temperature	T_{stg}		-40 to +125	°C	
Isolation voltage	V_{iso}	AC : 1min.	2500	VAC	
Screw torque	Mounting (*2)		3.5	N·m	
	Terminals (*2)		4.5		

Note *1: All terminals should be connected together when isolation test will be done.

Note *2: Recommendable value : Mounting : 2.5-3.5 N·m (M5 or M6), Terminals : 3.5-4.5 N·m (M6)

● Electrical characteristics (at Tj= 25°C unless otherwise specified)

Items	Symbols	Conditions	Characteristics			Units	
			min.	typ.	max.		
Zero gate voltage collector current	I_{CES}	$V_{GE} = 0V, V_{CE} = 1200V$	-	-	2.0	mA	
Gate-Emitter leakage current	I_{GES}	$V_{CE} = 0V, V_{GE} = \pm 20V$	-	-	400	nA	
Gate-Emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = 20V, I_c = 150mA$	4.5	6.5	8.5	V	
Collector-Emitter saturation voltage	$V_{CE(sat)}$ (terminal)	$V_{GE} = 15V$	Tj=25°C	-	2.00	2.15	V
			Tj=125°C	-	2.20	-	
	$V_{CE(sat)}$ (chip)	$I_c = 150A$	Tj=25°C	-	1.90	2.05	
			Tj=125°C	-	2.10	-	
Input capacitance	C_{ies}	$V_{GE} = 0V, V_{CE} = 10V, f = 1MHz$	-	17	-	nF	
Turn-on time	t_{on}	$V_{CC} = 600V$ $I_c = 150A$	-	0.32	1.20	μs	
	t_r		-	0.10	0.60		
	$t_r(i)$		-	0.03	-		
Turn-off time	t_{off}	$V_{GE} = \pm 15V$ $R_G = 4.7\Omega$	-	0.41	1.00	μs	
	t_f		-	0.07	0.30		
	t_{rr}		-	-	-		
Forward on voltage	V_F (terminal)	$V_{GE} = 0V$	Tj=25°C	-	1.75	1.90	V
			Tj=125°C	-	1.85	-	
	V_F (chip)	$I_F = 150A$	Tj=25°C	-	1.65	1.80	
			Tj=125°C	-	1.75	-	
Reverse recovery time	t_{rr}	$I_F = 150A$	-	-	0.35	μs	
Lead resistance, terminal-chip (*3)	R lead		-	0.53	-	mΩ	

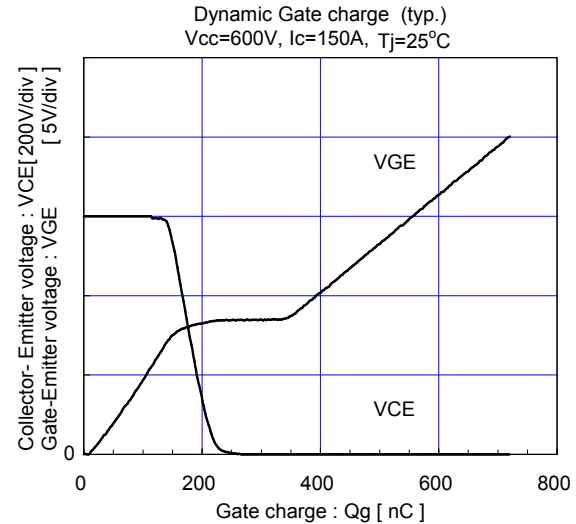
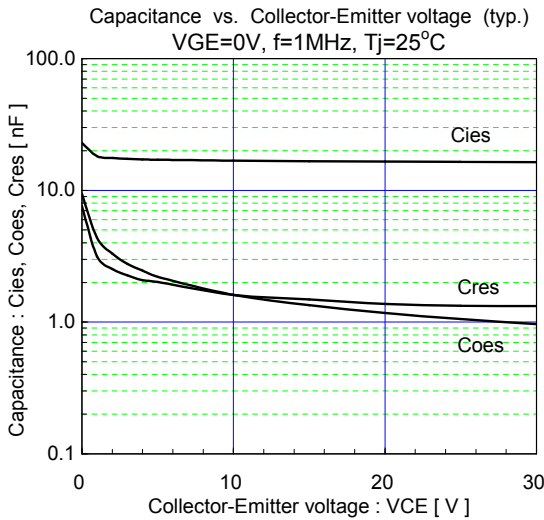
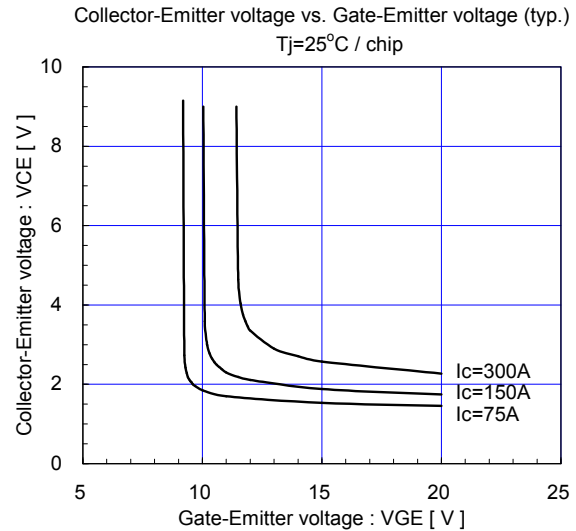
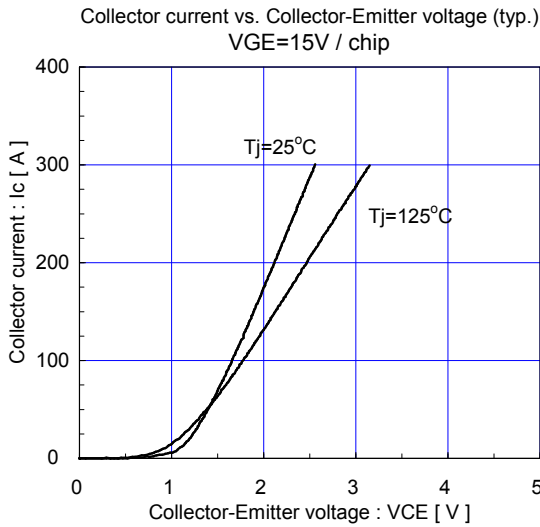
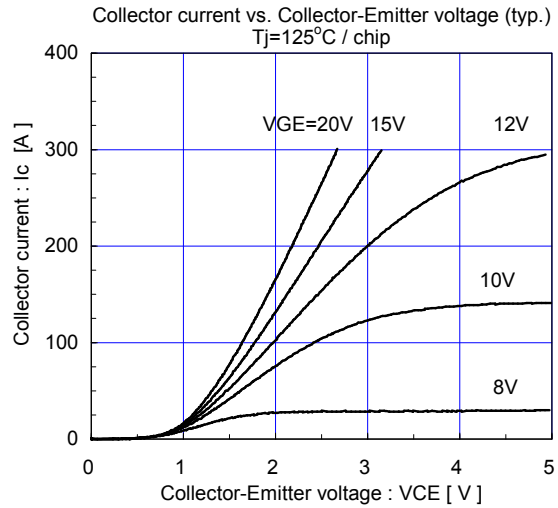
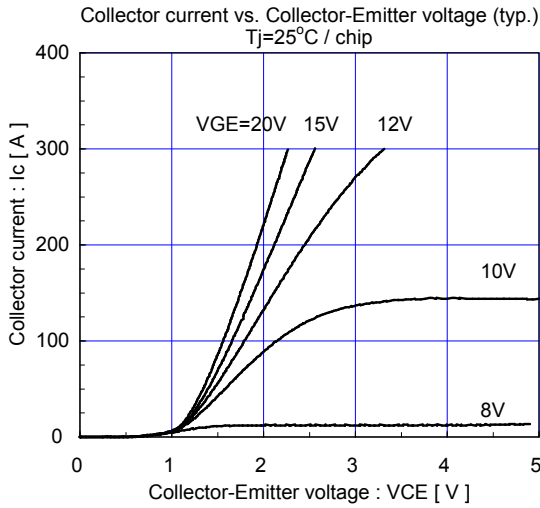
Note *3: Biggest internal terminal resistance among arm.

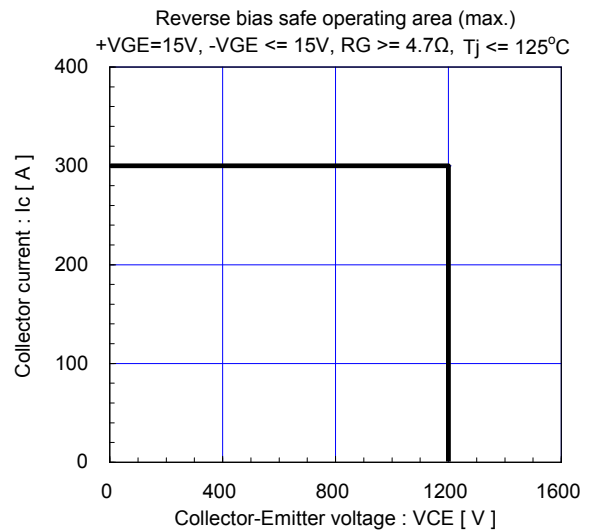
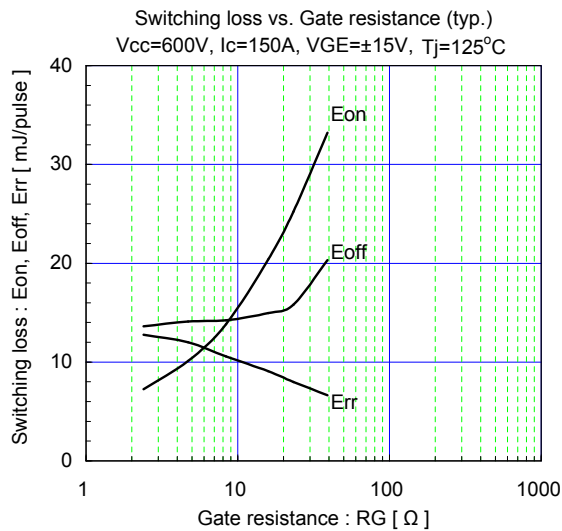
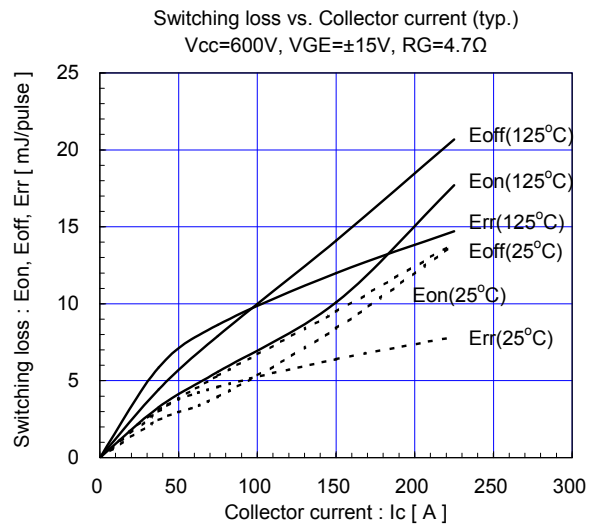
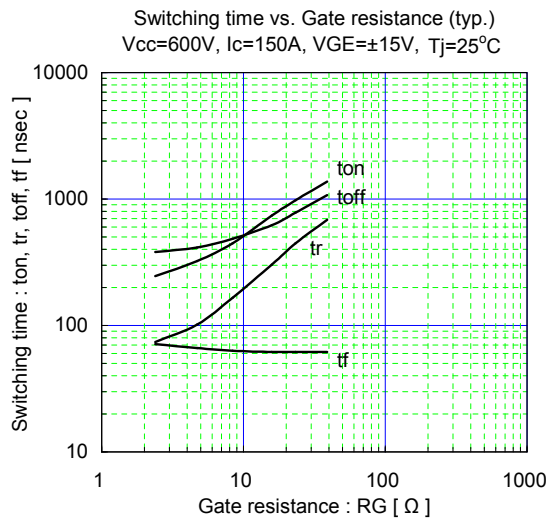
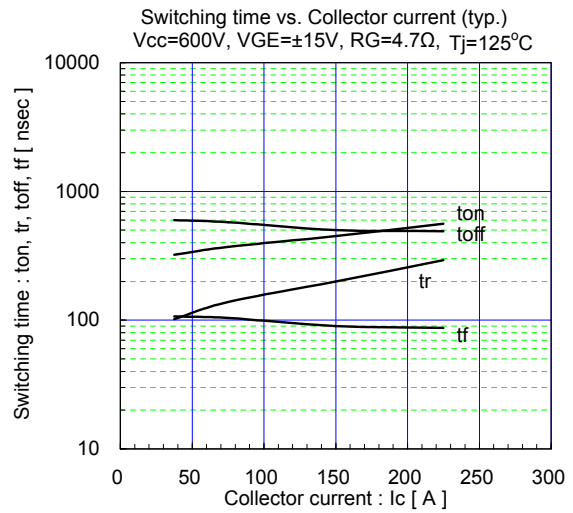
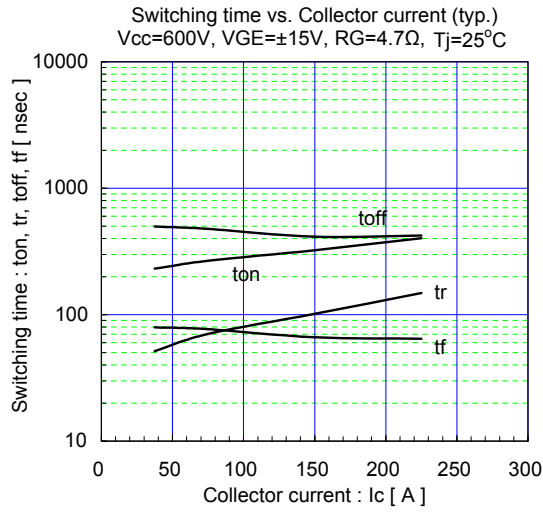
● Thermal resistance characteristics

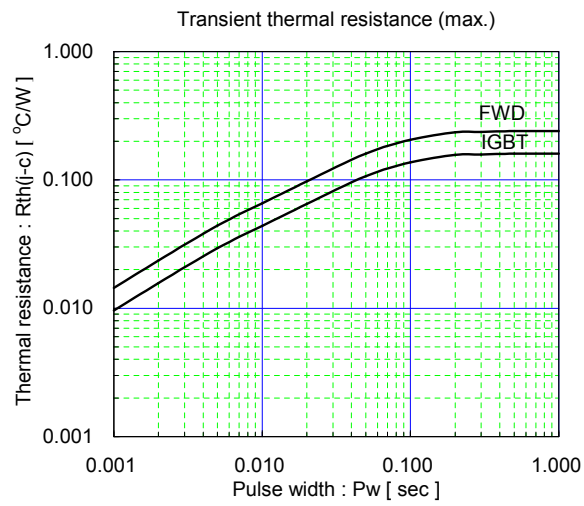
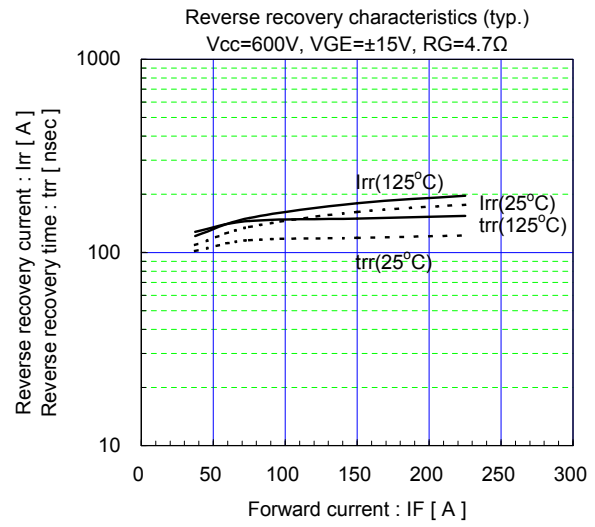
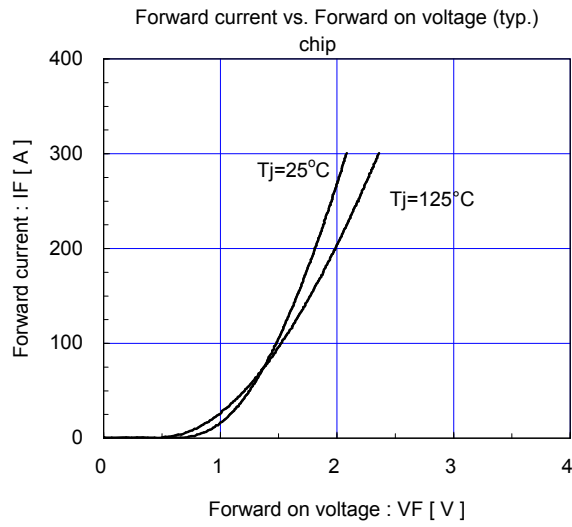
Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	max.	
Thermal resistance (1device)	$R_{th(j-c)}$	IGBT	-	-	0.16	°C/W
		FWD	-	-	0.24	
Contact thermal resistance (1device)	$R_{th(c-f)}$	with Thermal Compound (*4)	-	0.025	-	

Note *4: This is the value which is defined mounting on the additional cooling fin with thermal compound.

■ Characteristics (Representative)







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