

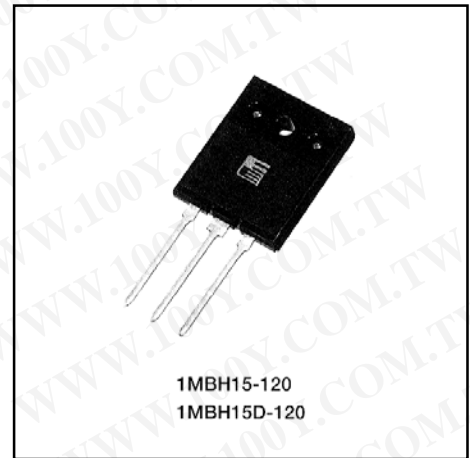
1200V / 15A Molded Package

■ Features

- Small molded package
- Low power loss
- Soft switching with low switching surge and noise
- High reliability, high ruggedness (RBSOA, SCSOA etc.)
- Comprehensive line-up

■ Applications

- Inverter for Motor drive
- AC and DC Servo drive amplifier
- Uninterruptible power supply



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

■ Maximum ratings and characteristics

- Absolute maximum ratings (at Tc=25°C unless otherwise specified)

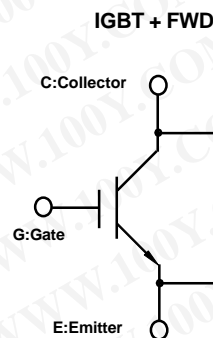
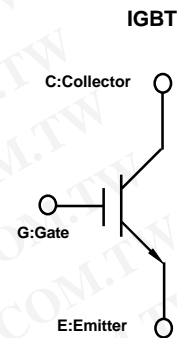
1MBH15-120 / IGBT

Item	Symbol	Rating	Unit
Collector-Emitter voltage	V _{CES}	1200	V
Gate-Emitter voltage	V _{GES}	±20	V
Collector current	DC	T _c =25°C	I _{C25} 26 A
		T _c =100°C	I _{C100} 15 A
	1ms	T _c =25°C	I _{CP} 78 A
Max. power dissipation(IGBT)	P _C	245	W
Operating temperature	T _J	+150	°C
Storage temperature	T _{stg}	-40 to +150	°C
Screw torque	-	70	N·m

1MBH15D-120 / IGBT+FWD

Item	Symbol	Rating	Unit
Collector-Emitter voltage	V _{CES}	1200	V
Gate-Emitter voltage	V _{GES}	±20	V
Collector current	DC	T _c =25°C	I _{C25} 26 A
		T _c =100°C	I _{C100} 15 A
	1ms	T _c =25°C	I _{CP} 78 A
Max. power dissipation (IGBT)	P _C	245	W
Max. power dissipation (FWD)	P _C	120	W
Operating temperature	T _J	+150	°C
Storage temperature	T _{stg}	-40 to +150	°C
Screw torque	-	70	N·m

■ Equivalent Circuit Schematic



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

1MBH15-120 / IGBT

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	ICES	-	-	1.0	VGE=0V, VCE=1200V	mA
Gate-Emitter leakage current	IGES	-	-	20	VCE=0V, VGE=±20V	µA
Gate-Emitter threshold voltage	VGE(th)	5.5	-	8.5	VCE=20V, IC=15mA	V
Collector-Emitter saturation voltage	VCE(sat)	-	-	3.5	VGE=15V, IC=15A	V
Input capacitance	Cies	-	1700	-	VGE=0V	pF
Output capacitance	Coes	-	300	-	VCE=10V	
Reverse transfer capacitance	Cres	-	120	-	f=1MHz	
Turn-on time	ton	-	-	1.2	VCC=600V IC=15A	µs
	tr	-	-	0.6	VGE=±15V	
Turn-off time	toff	-	-	1.5	RG=120 ohm	µs
	tf	-	-	0.5	(Half Bridge)	

1MBH15D-120 / IGBT+FWD

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	ICES	-	-	1.0	VGE=0V, VCE=1200V	mA
Gate-Emitter leakage current	IGES	-	-	20	VCE=0V, VGE=±20V	µA
Gate-Emitter threshold voltage	VGE(th)	5.5	-	8.5	VCE=20V, IC=15mA	V
Collector-Emitter saturation voltage	VCE(sat)	-	-	3.5	VGE=15V, IC=15A	V
Input capacitance	Cies	-	1700	-	VGE=0V	pF
Output capacitance	Coes	-	300	-	VCE=10V	
Reverse transfer capacitance	Cres	-	120	-	f=1MHz	
Turn-on time	ton	-	-	1.2	VCC=600V, IC=15A	µs
	tr	-	-	0.6	VGE=±15V	
Turn-off time	toff	-	-	1.5	RG=120 ohm	µs
	tf	-	-	0.5	(Half Bridge)	
FWD forward on voltage	VF	-	-	3.0	IF=15A, VGE=0V	V
Reverse recovery time	trr	-	-	0.35	IF=15A, VGE=-10V, di/dt=100A/µs	µs

● Thermal resistance characteristics

1MBH15-120 / IGBT

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	Rth(j-c)	-	-	0.51	IGBT	°C/W

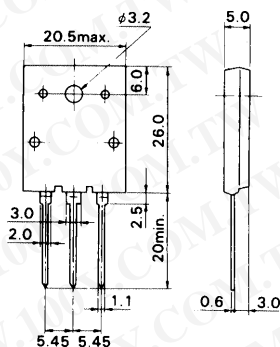
1MBH15D-120 / IGBT+FWD

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	Rth(j-c)	-	-	0.51	IGBT	°C/W
	Rth(j-c)	-	-	1.04	FWD	°C/W

■ Outline drawings, mm

1MBH15-120, 1MBH15D-120

TO-3PL



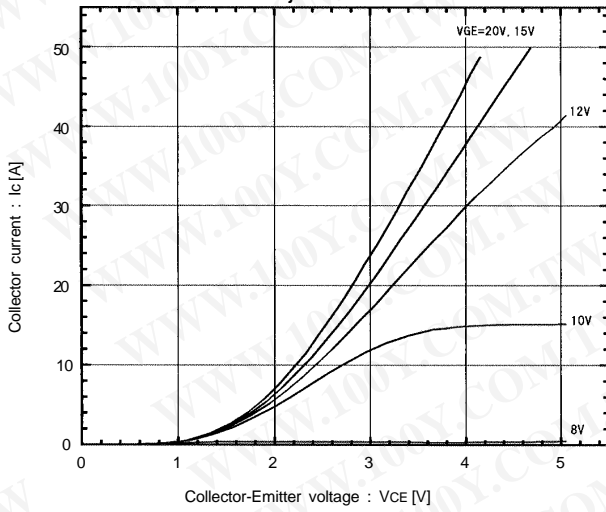
勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

Characteristics

1MBH15-120,1MBH15D-120

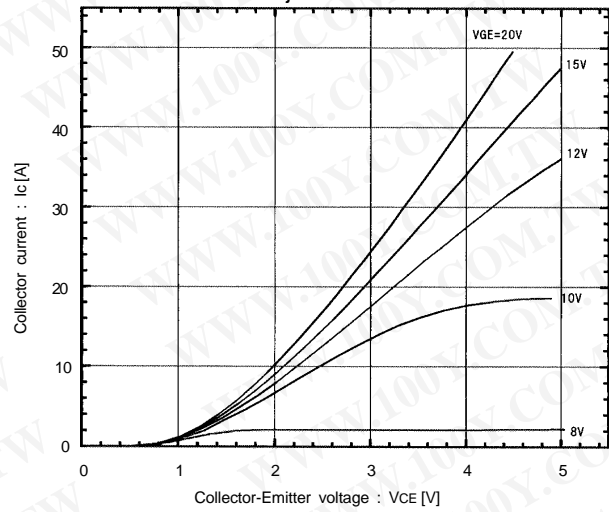
Collector current vs. Collector-Emitter voltage

T_j=25°C



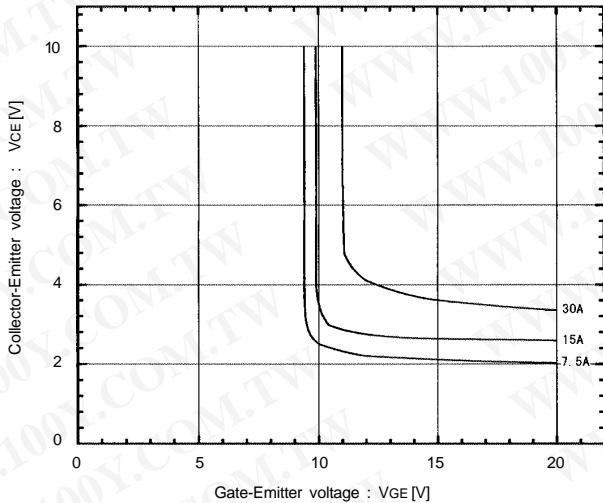
Collector current vs. Collector-Emitter voltage

T_j=125°C



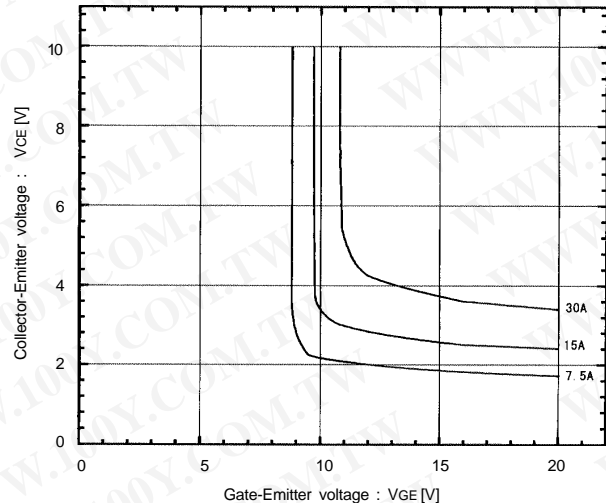
Collector-Emitter vs. Gate-Emitter voltage

T_j=25°C



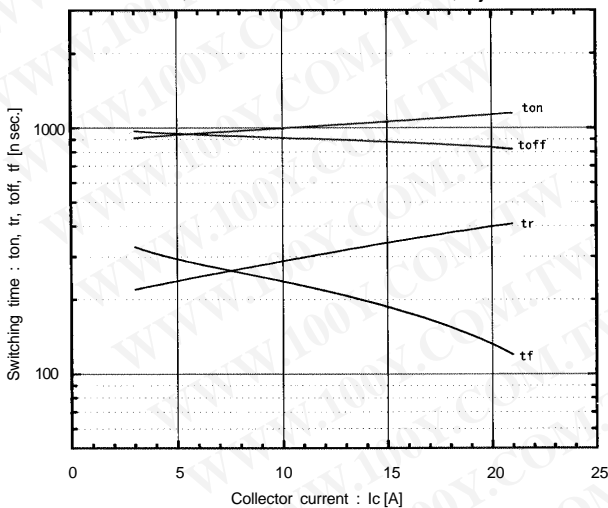
Collector-Emitter vs. Gate-Emitter voltage

T_j=125°C



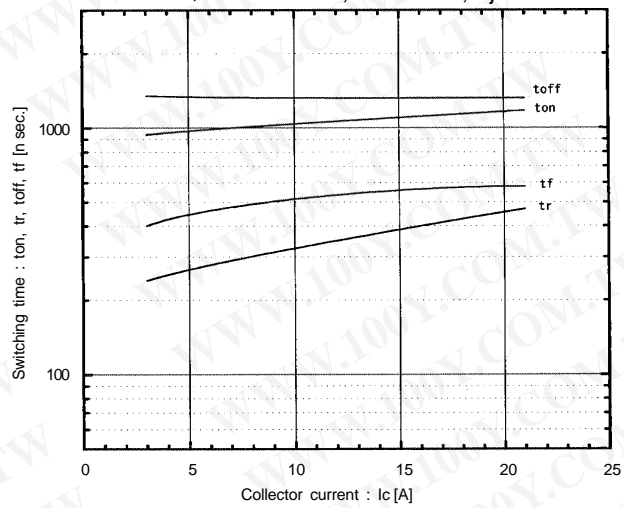
Switching time vs. Collector current

V_{CC}=600V, R_G=120 ohm, V_{GE}=±15V, T_j=25°C



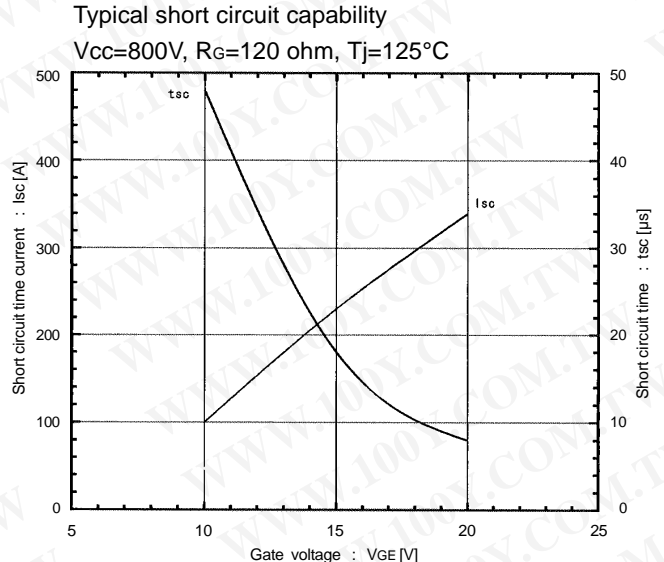
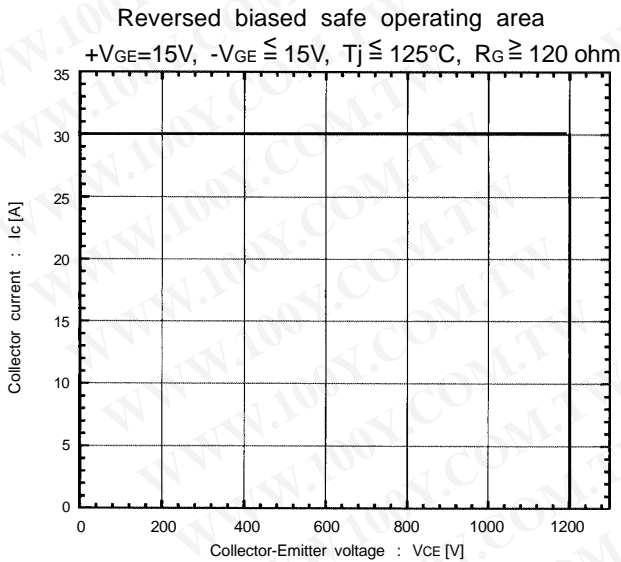
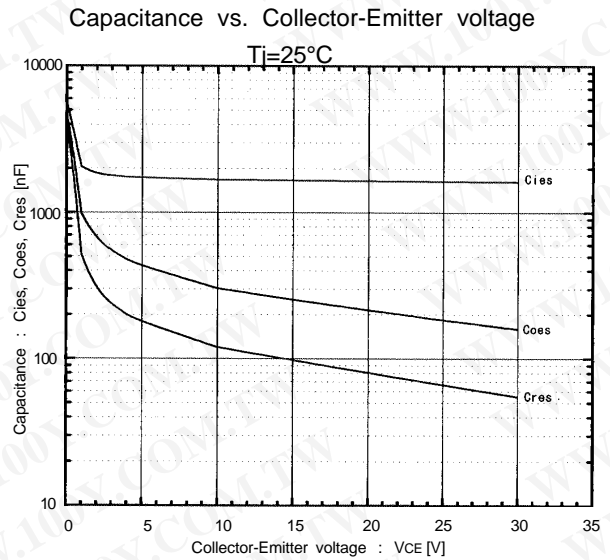
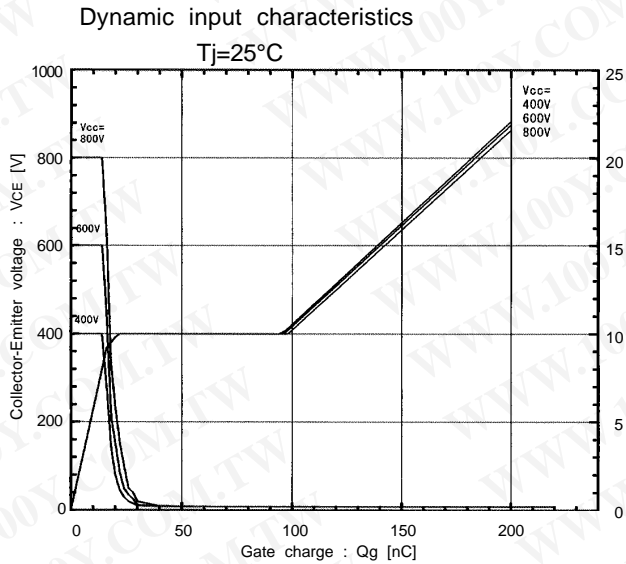
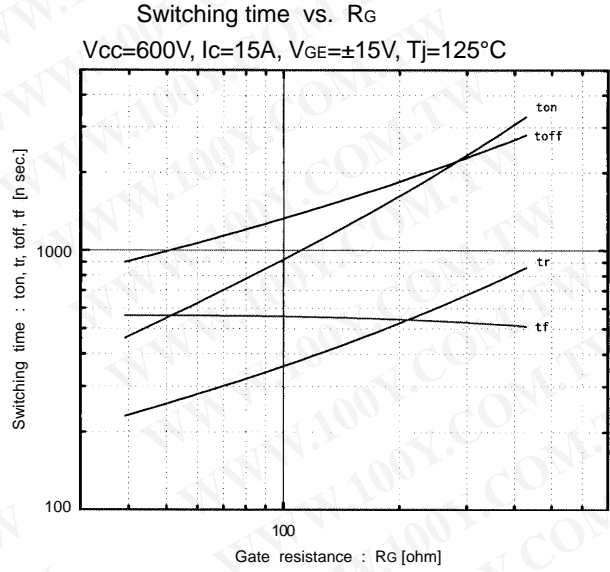
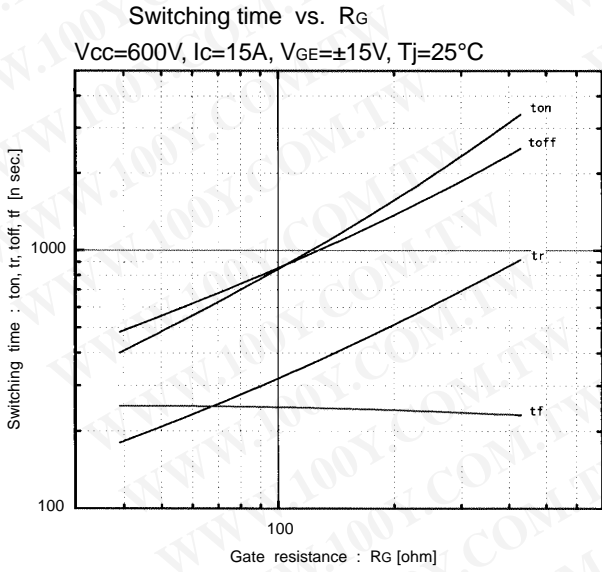
Switching time vs. Collector current

V_{CC}=600V, R_G=120 ohm, V_{GE}=±15V, T_j=125°C



Characteristics

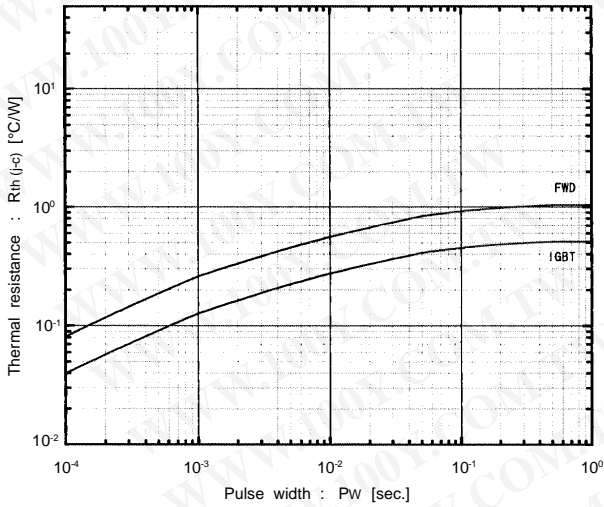
1MBH15-120,1MBH15D-120



■ Characteristics

1MBH15-120, 1MBH15D-120

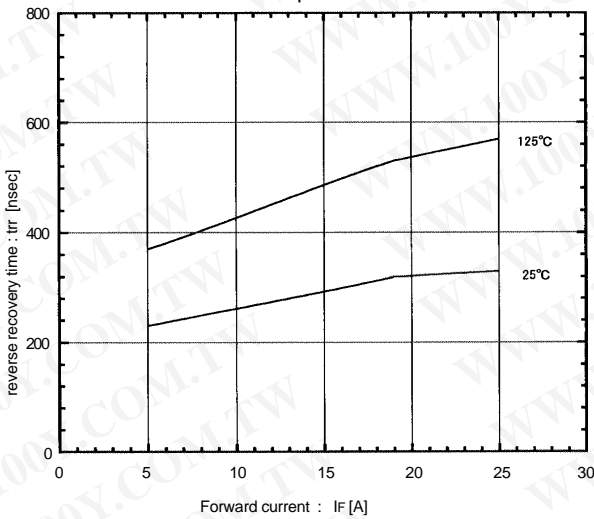
Transient thermal resistance



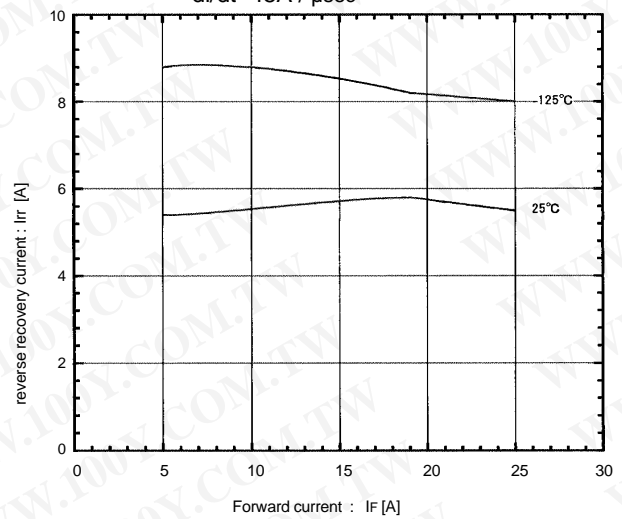
勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

1MBH15D-120

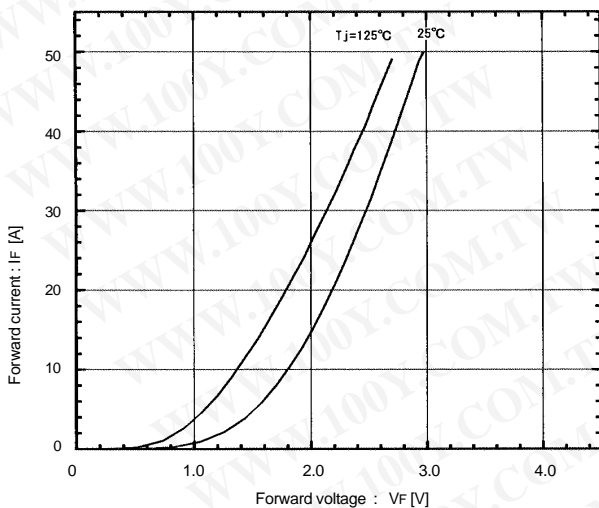
Reverse recovery time vs. Forward current
 $-di/dt=45A/\mu\text{sec}$



Reverse recovery current vs. Forward current
 $-di/dt=45A/\mu\text{sec}$



Forward current vs. Forward voltage



Reverse recovery time characteristics vs. $-di/dt$
 $IF=15A, Tj=125^\circ\text{C}$

