

# MG100HF12TLC1

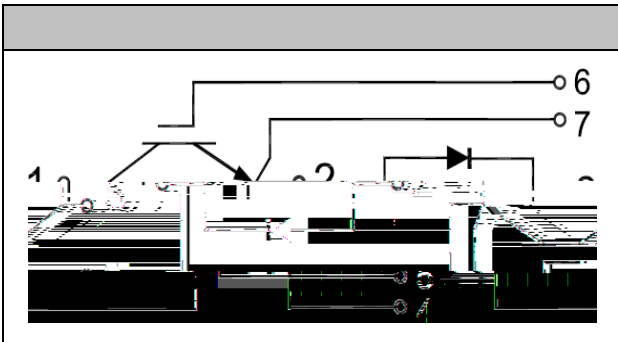


## IGBT Modules

$V_{CES}$	1200V
$I_c$	100A

## Applications

- Inverter for motor drive
- AC and DC servo drive amplifier
- UPS (Uninterruptible Power Supplies)
- Soft switching welding machine



## Features

- Low  $V_{ce(sat)}$  with Trench technology
- $V_{ce(sat)}$  with positive temperature coefficient
- High short circuit capability(10 $\mu$ s)
- Including ultra fast & soft recovery anti-parallel FWD
- Low inductance
- Maximum junction temperature 175

## ● IGBT

### Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Collector-Emitter Voltage	$V_{CES}$	$V_{GE}=0V, I_c =1mA, T_{vj}=25$	1200	V
Continuous Collector Current	$I_c$	$T_c=100$	100	A
Repetitive Peak Collector Current	$I_{CRM}$	$t_p=1ms$	200	A
Gate-Emitter Voltage	$V_{GES}$	$T_{vj}=25$	20	V
Total Power Dissipation	$P_{tot}$	$T_c=25$ $T_{vjmax}=175$	785	W



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## Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=4mA, T_{vj}=25$	5.0	6.2	7.0	V
Collector-Emitter Cut-off Current	$I_{CES}$	$V_{CE}=1200V, V_{GE}=0V, T_{vj}=25$			1.0	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100A, V_{GE}=15V, T_{vj}=25$		1.85		V
		$I_C=100A, V_{GE}=15V, T_{vj}=125$		2.05		
Input Capacitance	$C_{ies}$	$V_{CE}=25V, V_{GE}=0V,$ $f=1MHz, T_{vj}=25$		7.43		nF
Reverse Transfer Capacitance	$C_{res}$				0.34	
Gate-Emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25$			400	nA
Turn-on Delay Time	$t_{d(on)}$			279		ns

Rise Time

$t_r$

61

$I_C=100A$

$V_{CE}=600V$

$V_{GE}=\pm 15V$

$R_G=5.6$

$T_{vj}=25$



# MG100HF12TLC1

## ● Diode

### Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	$T_{vj}=25$	1200	V
Continuous DC Forward Current	$I_F$		100	A
Repetitive Peak Forward Current	$I_{FRM}$	$t_p=1\text{ms}$	200	A

### Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	$V_F$	$I_F=100\text{A}, T_{vj}=25$		1.80		V
		$I_F=100\text{A}, T_{vj}=125$		1.85		
Recovered Charge	$Q_{rr}$	$I_F=100\text{A}$		11.4		$\mu\text{C}$
Peak Reverse Recovery Current	$I_{rr}$	$V_R=600\text{V}$ $-di_F/dt=1900\text{A}/\mu\text{s}$		103		A
Reverse Recovery Energy	$E_{rec}$	$T_{vj}=25$		5.8		mJ
Recovered Charge	$Q_{rr}$	$I_F=100\text{A}$		22.5		$\mu\text{C}$
Peak Reverse Recovery Current	$I_{rr}$	$V_R=600\text{V}$ $-di_F/dt=1900\text{A}/\mu\text{s}$		140		A
Reverse Recovery Energy	$E_{rec}$	$T_{vj}=125$		10.6		mJ

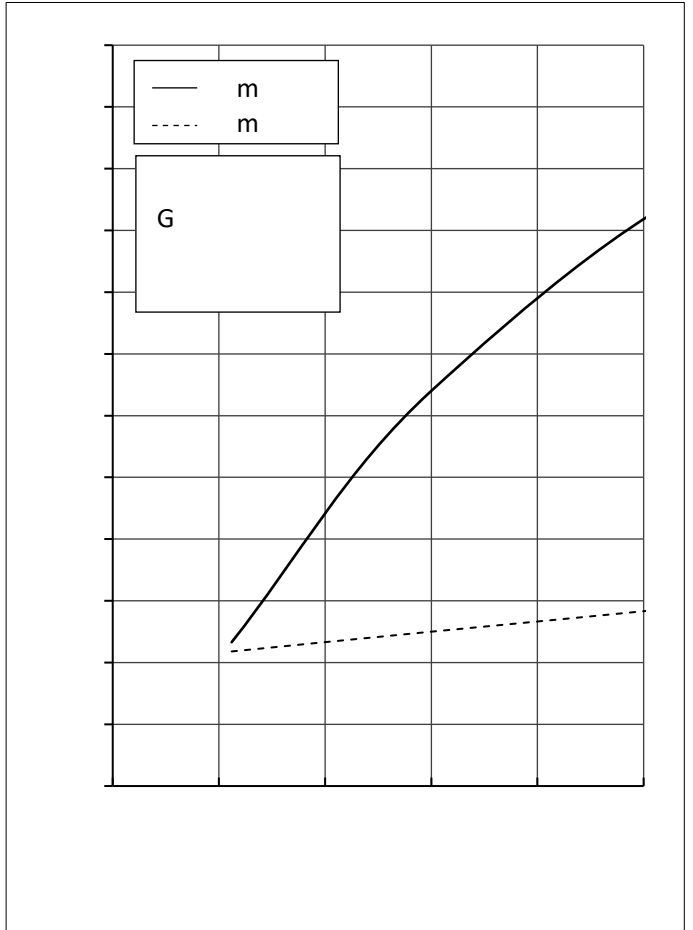
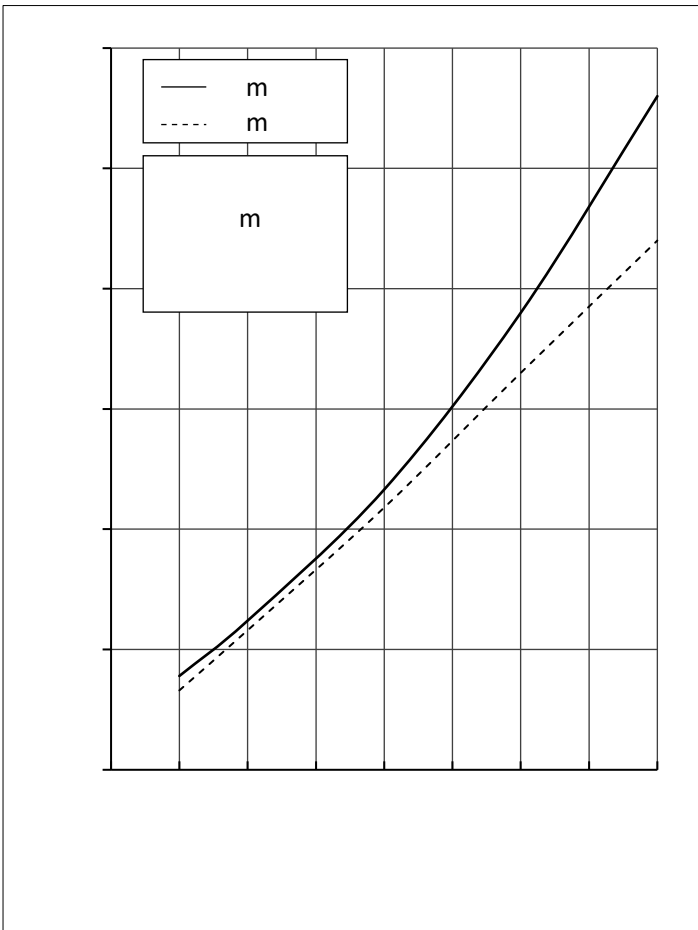
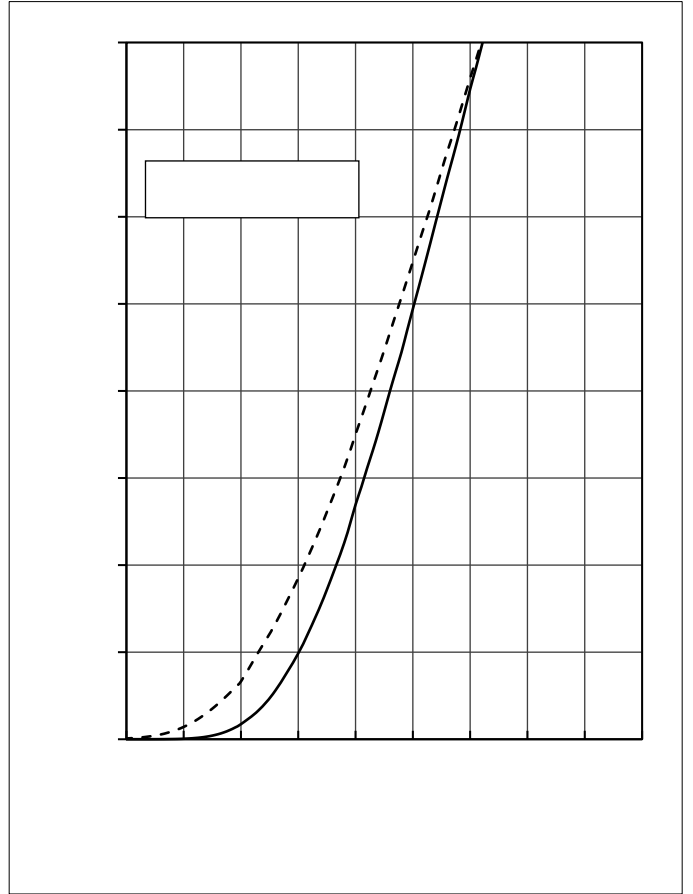
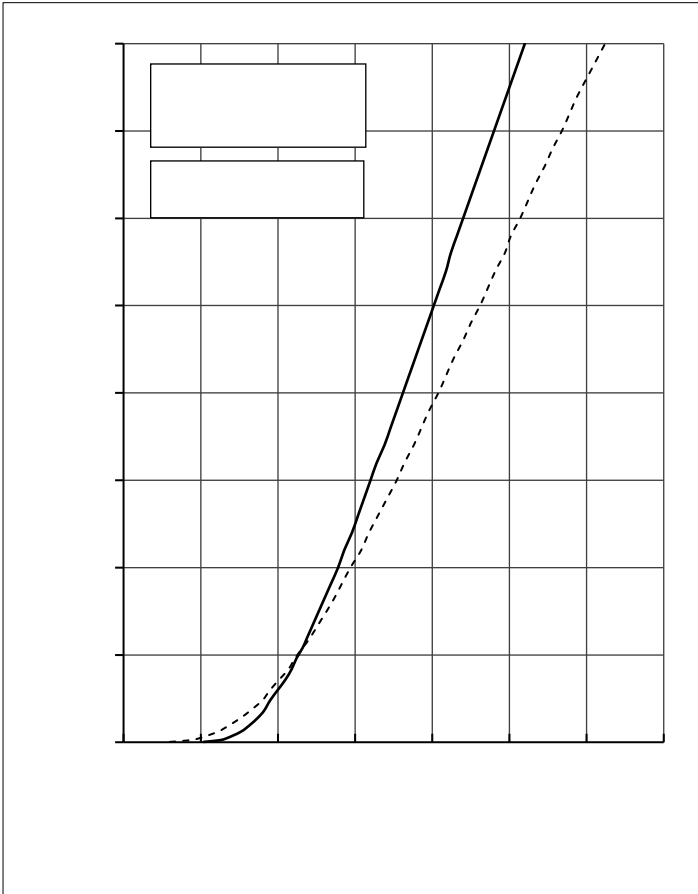


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## ● Module Characteristics

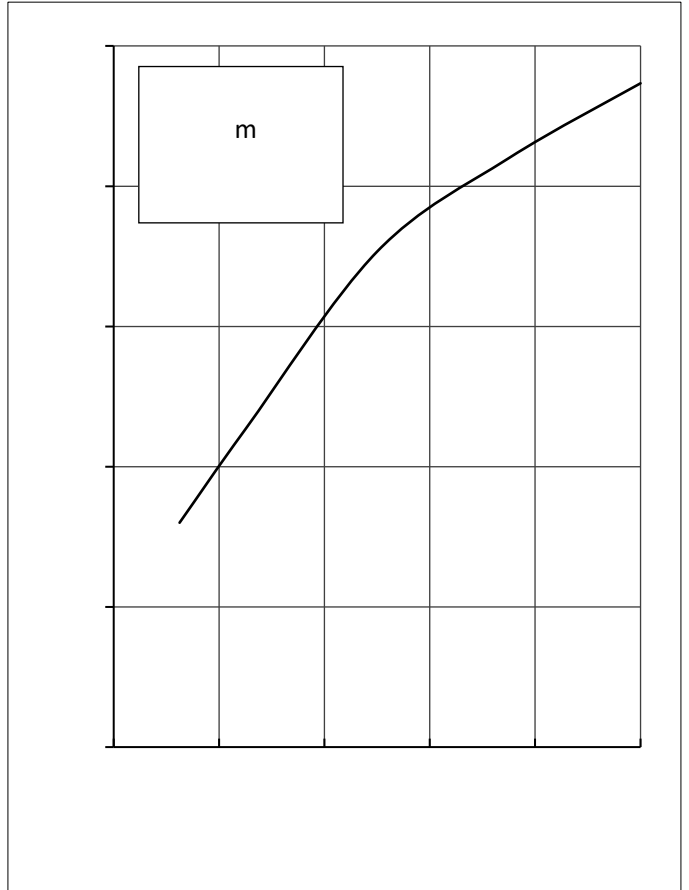
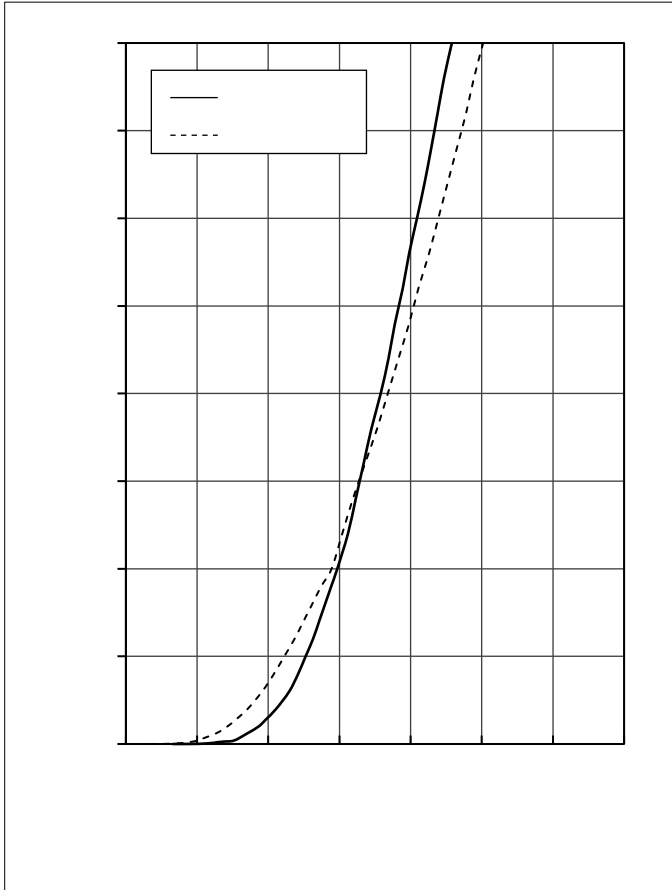
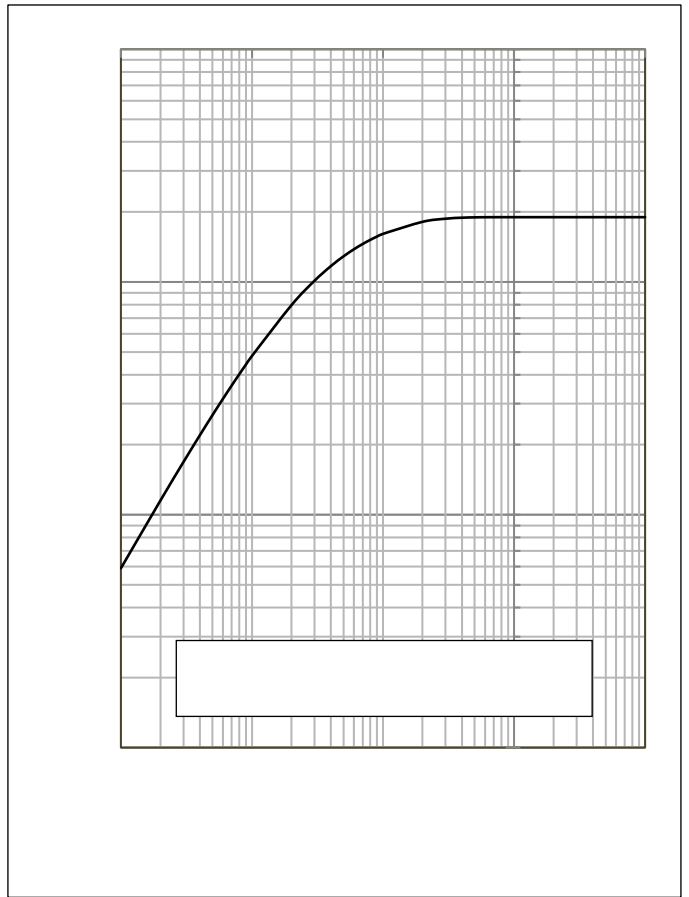
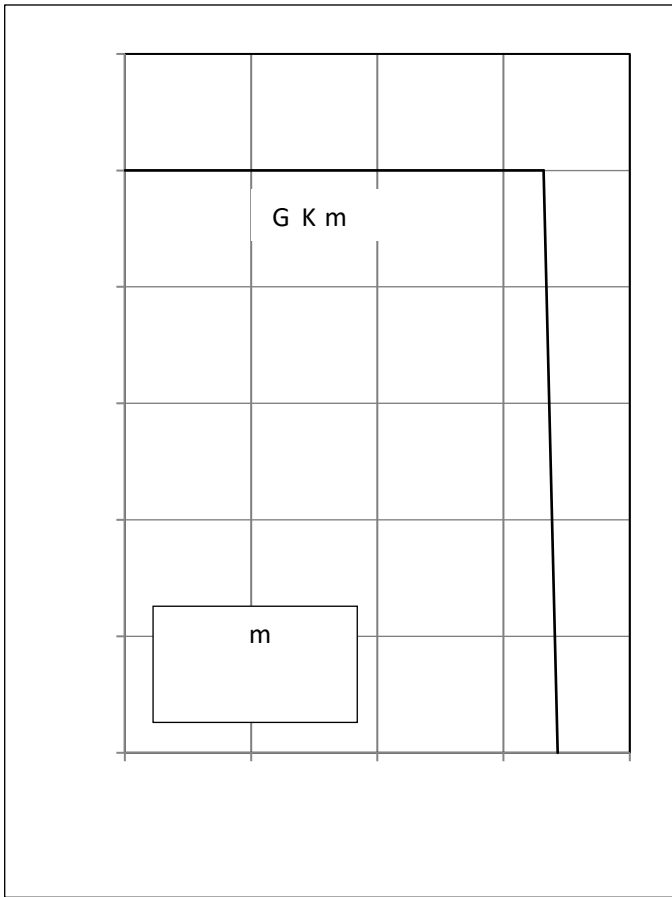
T<sub>c</sub>=25°C unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Isolation voltage	V <sub>isol</sub>	t=1min,f=50Hz	2500			V
Maximum Junction Temperature	T <sub>jmax</sub>				175	
Operating Junction Temperature	T <sub>vjop</sub>		-40		150	
Storage Temperature	T <sub>stg</sub>		-40		125	
Thermal Resistance Junction-to Case	R <sub>JC</sub>	per IGBT			0.19	K/W
		per Diode			0.29	
Thermal Resistance Case-to Sink	R <sub>CS</sub>	Conductive grease applied		0.05		K/W
Module Electrodes Torque	M <sub>t</sub>	Recommended(M5)	2.5		5.0	N·m
Module-to-Sink Torque	M <sub>s</sub>	Recommended(M6)	3.0		5.0	N·m
Weight of Module	G			150		g





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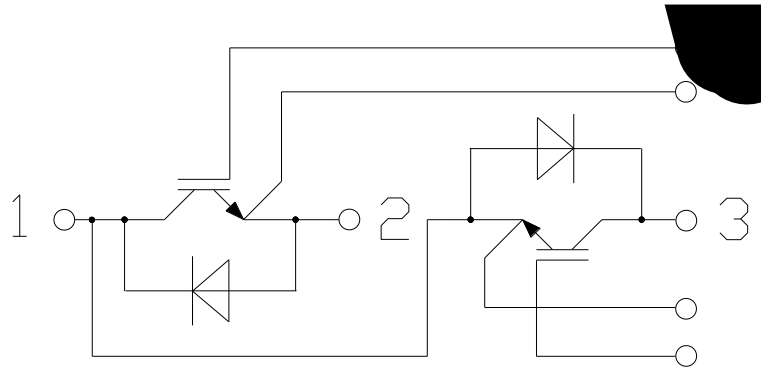






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## ● Circuit Diagram



## ● Package Outline Information

Dimensions in Millimeters

