



MG150HF12LEC2

IGBT Modules

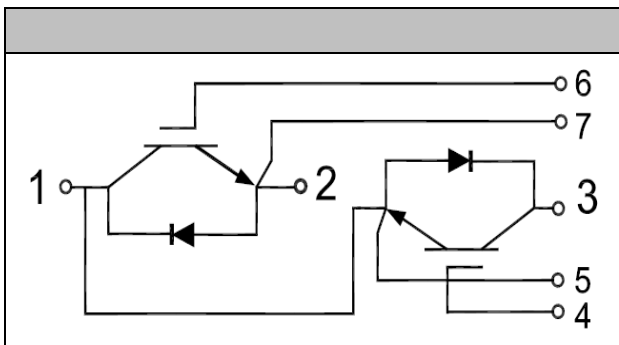
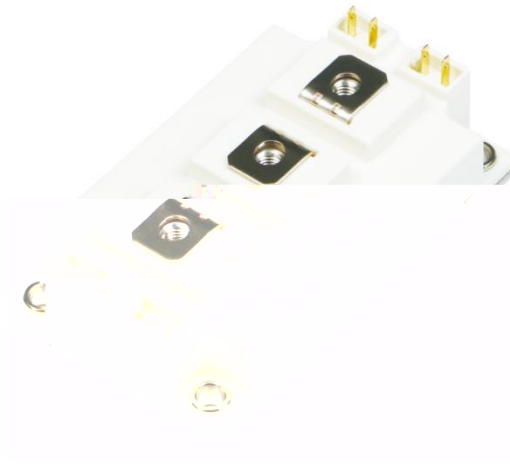
V_{CES}	1200V
I_c	150A

Applications

- High frequency drivers
- Solar inverters
- UPS (Uninterruptible Power Supplies)
- Electric welding machine

Features

- High speed IGBT in NPT technology
- Low switching losses
- High short circuit capability(10us)
- Including ultra fast & soft recovery anti-parallel FWD
- Low inductance
- Maximum junction temperature 150



● 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	$T_c=80$	150	A
Repetitive Peak Collector Current	I_{CRM}	$t_p=1ms$	300	A
Gate-Emitter Voltage	V_{GES}	$T_{vj}=25$	20	V
Total Power Dissipation	P_{tot}	$T_c=25$ $T_{vjmax}=150$	1136	W



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Characteristic values

Parameter	Symbol	Conditions	Value			Unit	
			Min.	Typ.	Max.		
Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=6mA, T_{vj}=25$	5.0	5.8	6.5	V	
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V, T_{vj}=25$			1.0	mA	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=150A, V_{GE}=15V, T_{vj}=25$		3.0	3.5	V	
		$I_C=150A, V_{GE}=15V, T_{vj}=125$		3.8			
Gate Charge	Q_G			1.75		uC	
Input Capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V,$ $f=1MHz, T_{vj}=25$		9.8		nF	
Reverse Transfer Capacitance	C_{res}			0.6		nF	
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25$			400	nA	
Turn-on Delay Time	$t_{d(on)}$	$I_C=150A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_{GON}=5.1$ $R_{GOFF}=2.5$ $T_{vj}=25$		70		ns	
Rise Time	t_r			60		ns	
Turn-off Delay Time	$t_{d(off)}$				230		ns
Fall Time	t_f				32		ns
Energy Dissipation During Turn-on Time	E_{on}				14.4		mJ
Energy Dissipation During Turn-off Time	E_{off}				5.5		mJ
Turn-on Delay Time	$t_{d(on)}$	$I_C=150A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_{GON}=5.1$ $R_{GOFF}=2.5$ $T_{vj}=125$		90		ns	
Rise Time	t_r			70		ns	
Turn-off Delay Time	$t_{d(off)}$				280		ns
Fall Time	t_f				35		ns
Energy Dissipation During Turn-on Time	E_{on}				21.6		mJ
Energy Dissipation During Turn-off Time	E_{off}				7.8		mJ
SC Data	I_{sc}	$T_p=10\mu s, V_{GE}=15V, T_{vj}=125$, $V_{CC}=600V, V_{CEM}=1200V$		1100		A	



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● 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		150	A
Repetitive Peak Forward Current	I_{FRM}	$t_p=1\text{ms}$	300	A

Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	$I_F=150\text{A}, T_{vj}=25$		1.90	2.40	V
		$I_F=150\text{A}, T_{vj}=125$		1.95		
Recovered Charge	Q_{rr}	$I_F=150\text{A}$		6.8		μC
Peak Reverse Recovery Current	I_{rr}	$V_R=600\text{V}$ $-di_F/dt=1400\text{A}/\mu\text{s}$		145		A
Reverse Recovery Energy	E_{rec}	$T_{vj}=25$		4.1		mJ
Recovered Charge	Q_{rr}	$I_F=150\text{A}$		14.5		μC
Peak Reverse Recovery Current	I_{rr}	$V_R=600\text{V}$ $-di_F/dt=1400\text{A}/\mu\text{s}$		160		A
Reverse Recovery Energy	E_{rec}	$T_{vj}=125$		8.4		mJ



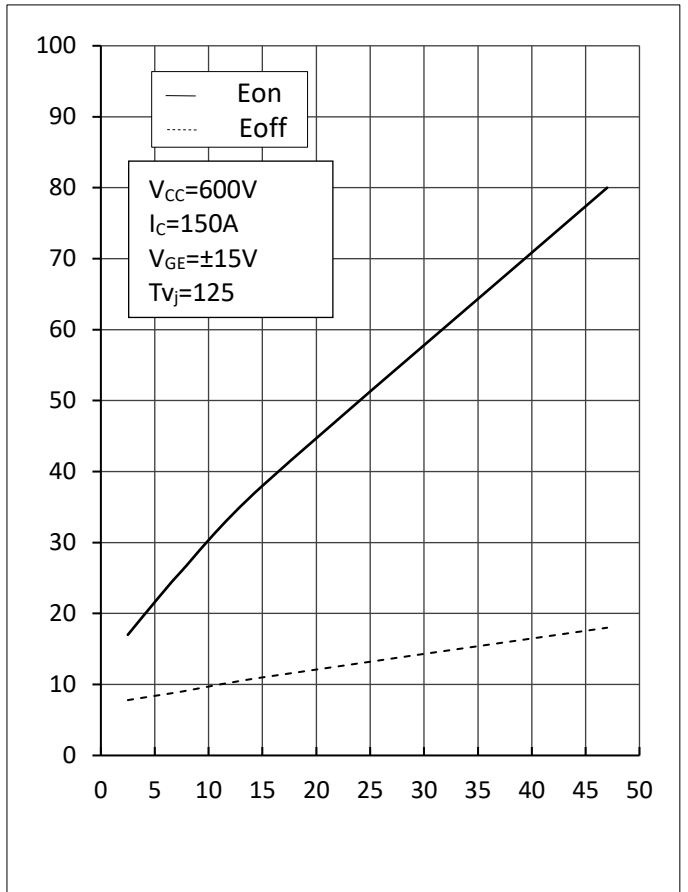
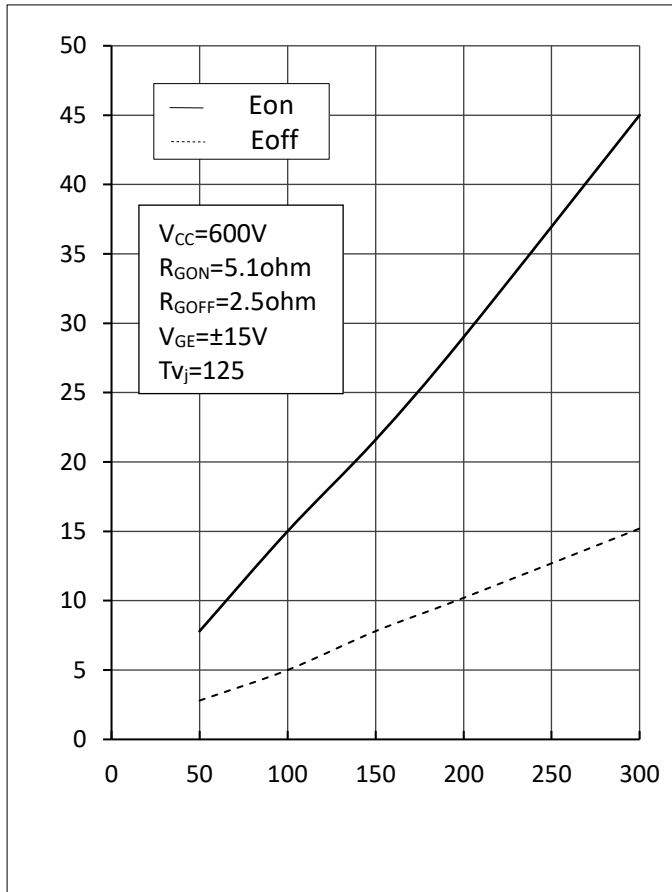
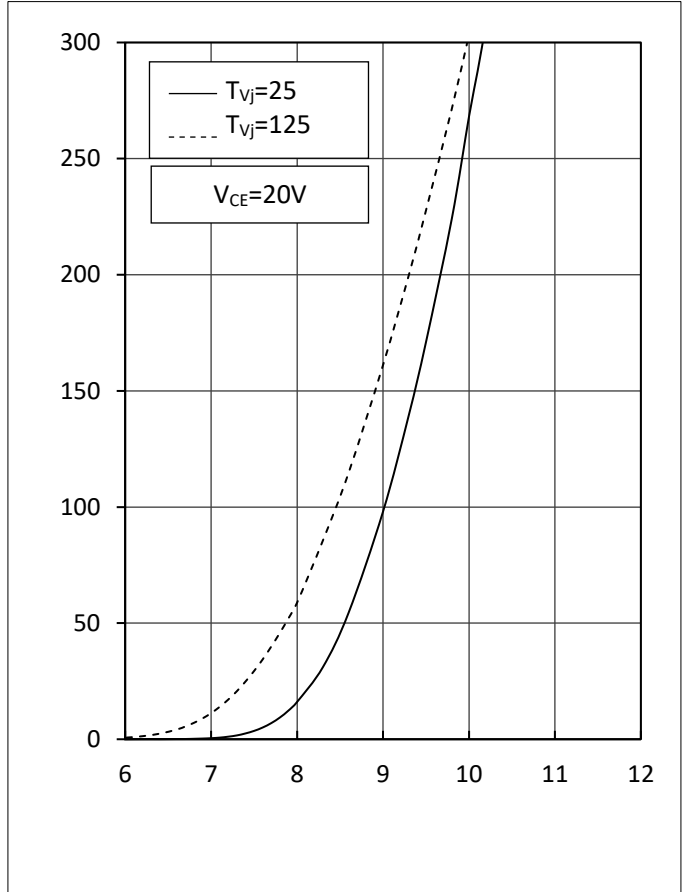
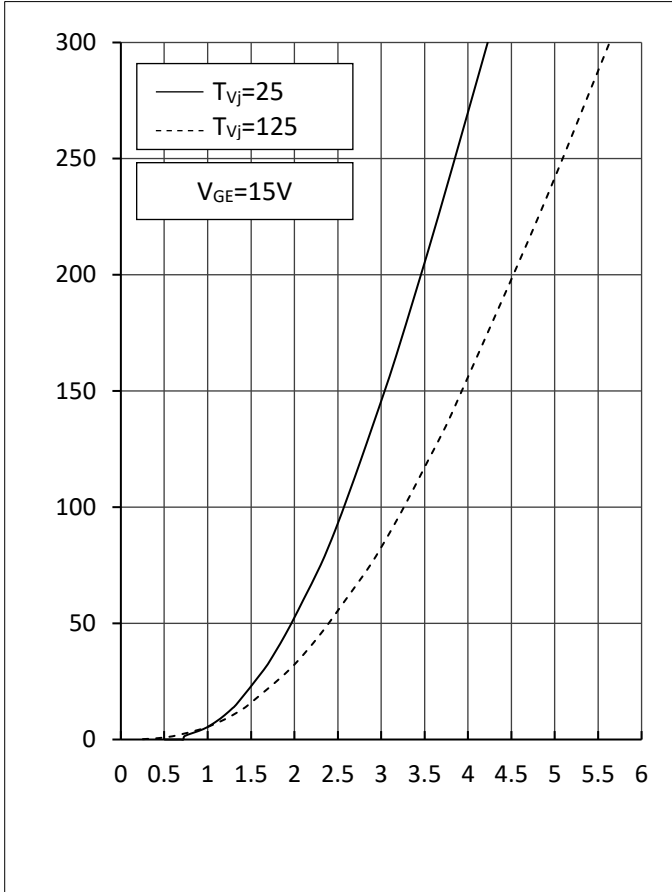
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● **Module Characteristics** $T_C=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Isolation voltage	V_{isol}	$t=1\text{min}, f=50\text{Hz}$	2500			V
Maximum Junction Temperature	T_{jmax}				150	

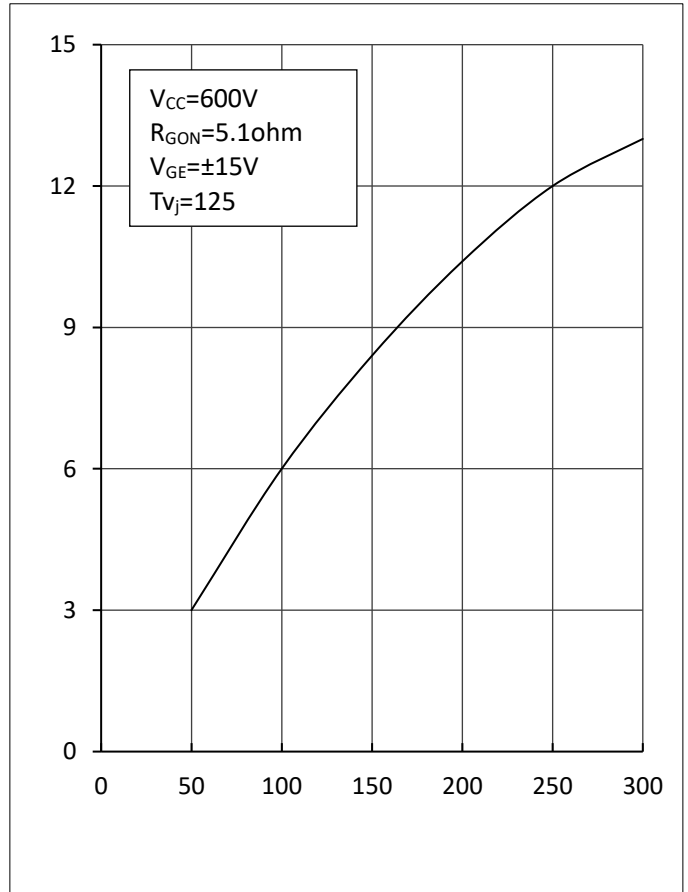
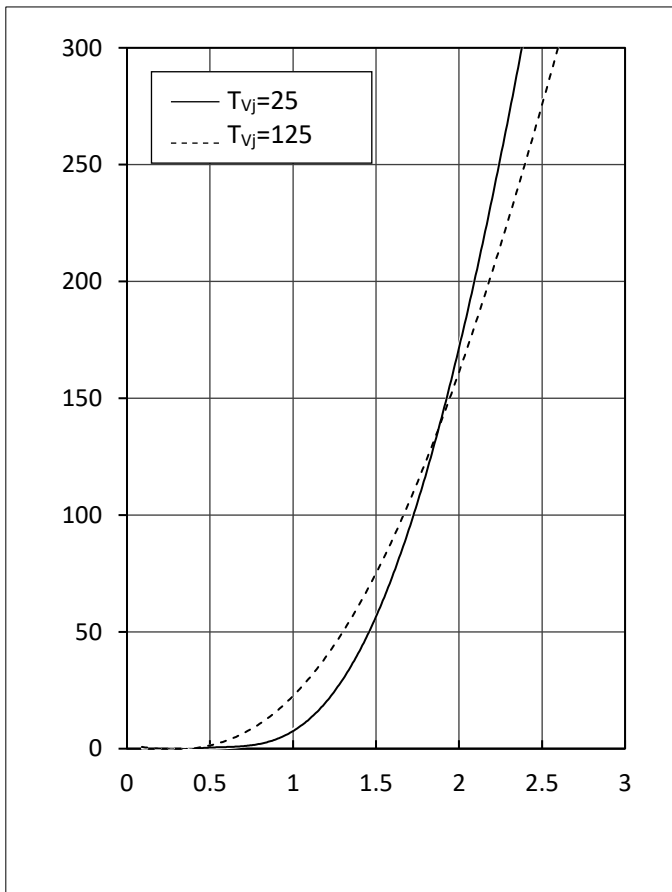
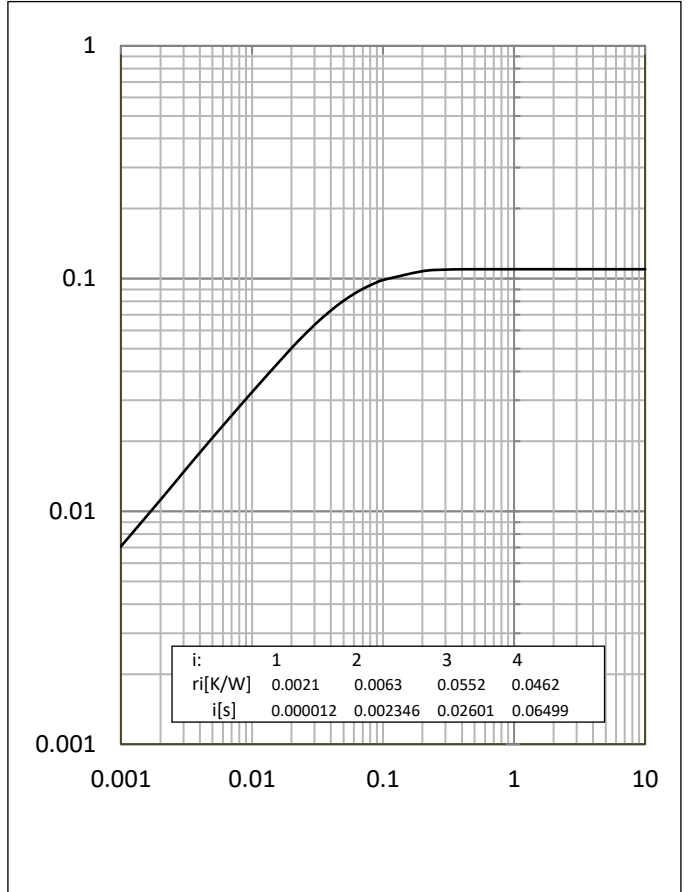
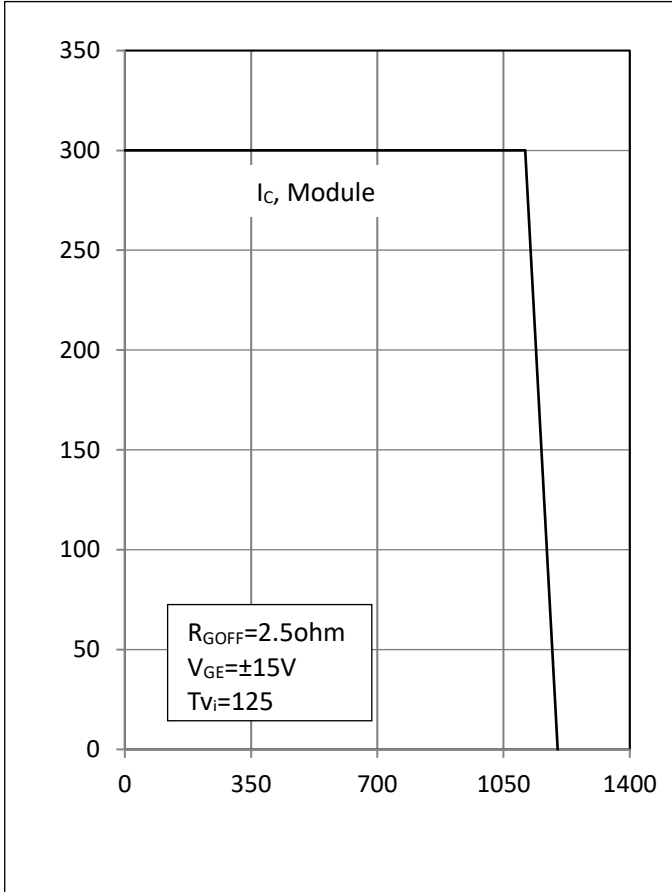


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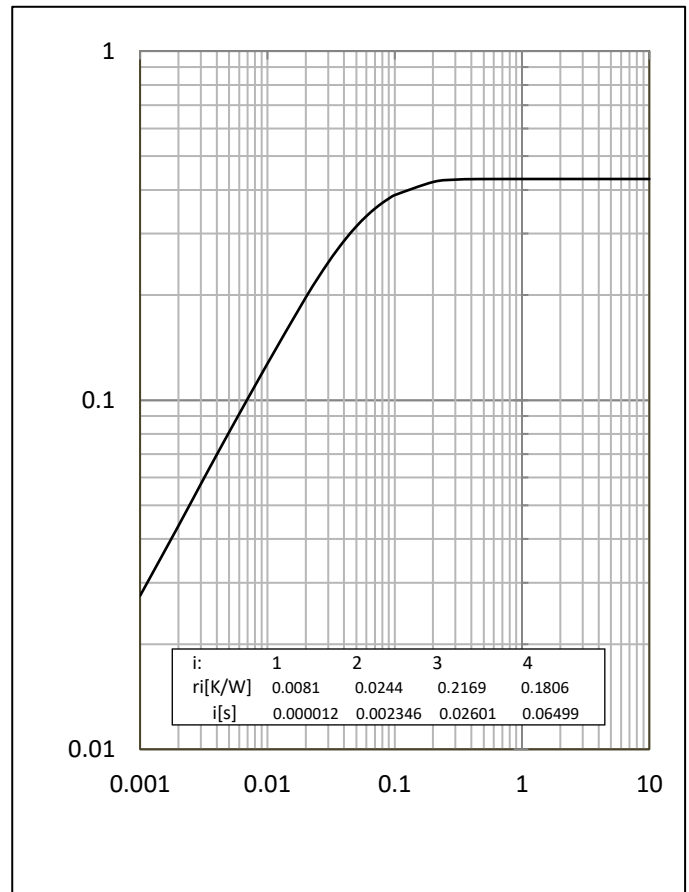
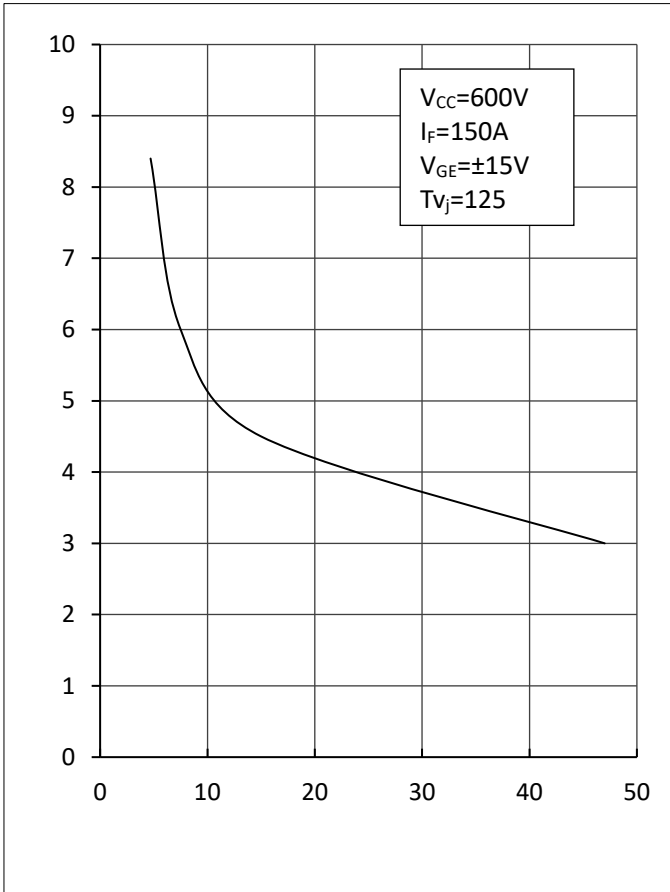


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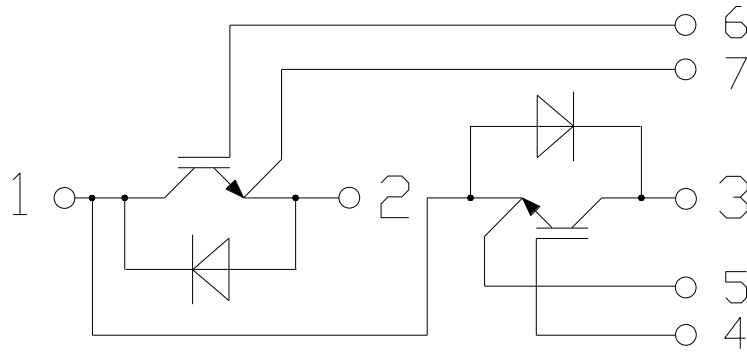
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● Circuit Diagram



● Package Outline Information

Dimensions in Millimeters

