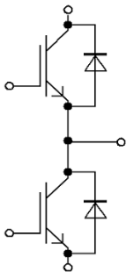
62mm Module with IGBT and Diode

Features:

- 1200V Trench & Field stop technology
- Low switching losses
- Positive temperature coefficient



Applications:

- Induction heating
- High power converters
- Motor Drives
- UPS systems

IGBT, Inverter

Maximum Ratings

Parameter	Conditions	Symbol	Value	Unit
Collector-Emitter voltage	T_{vj}=25°C	V_{CES}	1200	V
Continuous DC collector current	T_C=100°C, $T_{vj\ max}$=175°C T_C=25°C, $T_{vj\ max}$=175°C	$I_{C\ nom}$ I_C	450 680	A
Repetitive peak collector current	t_P=1ms	I_{CRM}	900	A
Total power dissipation	T_C=25°C, $T_{vj\ max}$=175°C	P_{tot}	1875	W
Gate emitter voltage		V_{GE}	±20	V

Characteristic Values, T_{vj}=25°C

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Collector-Emitter saturation voltage	V_{GE}=15V, I_C=450A	V_{CEsat}		2.09		V
Gate-Emitter threshold voltage	I_C=17mA, V_{GE}= V_{CE}	$V_{GE(th)}$		5.66		
Gate charge	V_{GE}=-15V ... +15V	Q_G		1.9		µC
Internal gate resistor		R_{Gint}		2.35		Ω
Input capacitance	V_{CE}=25V, V_{GE}=0V,	C_{ies}		28.8		nF

Output capacitance	f=1MHz	C_{oes}		2.57		
Reverse transfer capacitance		C_{res}		1.32		
Gate-emitter cut-off current	V_{CE}=1200V, V_{GE}= 0V	I_{CES}			1.0	mA
Gate-Emitter leakage current	V_{CE}=0V, V_{GE}= 20V	I_{GES}			100	nA
Turn-on delay time	I_C=450A, V_{CE}=600V, V_{GE}=±15V, R_G=1.0Ω, (inductive load)	$t_{d\,on}$		145		ns
Rise time		t_r		66		
Turn-off delay time		$t_{d\,off}$		384		
Fall time		t_f		99		
Turn-on energy loss per pulse		E_{on}		17		mJ
Turn-off energy loss per pulse		E_{off}		32		
Total energy loss per pulse		E_{total}		49		
SC data	V_{GE}≤15V, Vcc=800V, R_G=10Ω	I_{SC}		1870		A
		T_{SC}		10		µs
Thermal resistance, junction to case	pro IGBT / per IGBT	R_{thJC}		0.08		K/W

Diode, Inverter

Maximum Ratings

Parameter	Conditions	Symbol	Value	Unit
Repetitive peak reverse voltage	T_{vj}=25°C	V_{RRM}	1200	V
Continuous DC forward current		I_F	450	A
Repetitive peak forward current	t_p=1ms	I_{FRM}	900	A

Characteristic Values, T_{vj}=25°C

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	I_F=450A, V_{GE}=0V	V_F		1.84		V
Reverse recovery time	I_F=450A, -di$_F$/dt=8150 A/µs, V_R=600V, V_{GE}=-15V	T_{rr}		133		ns
Peak reverse recovery current		I_{RM}		375		A
Recovered charge		Q_r		31		µC
Reverse recovered energy		E_{rec}		11		mJ

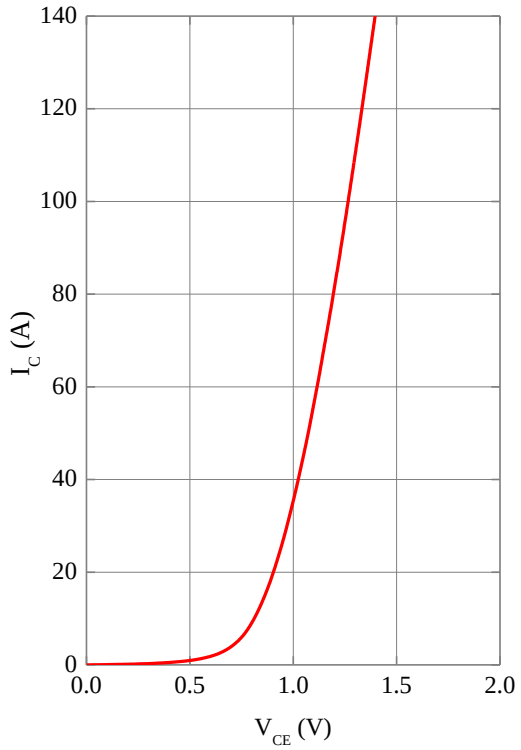


Figure 1. Typical output characteristic
(T_{vj}=25ºC, V_{GE}=15V)

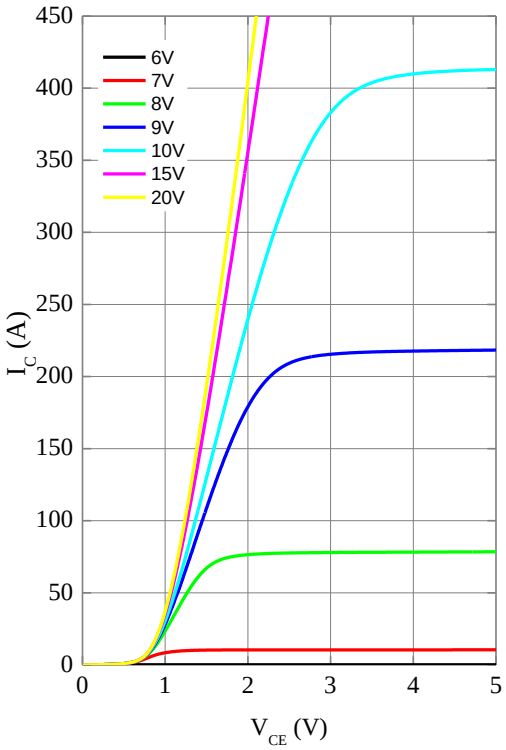


Figure 2. Typical output characteristics
(T_{vj}=25ºC)

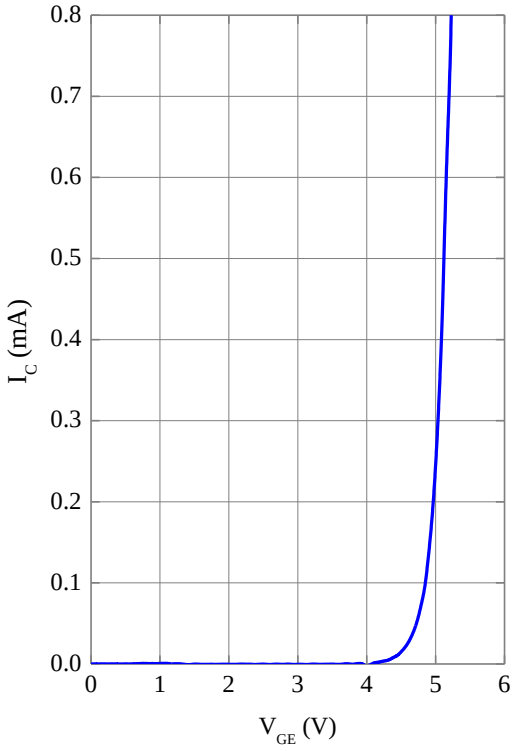


Figure 3. Threshold characteristic
(V_{GE}=V_{CE})

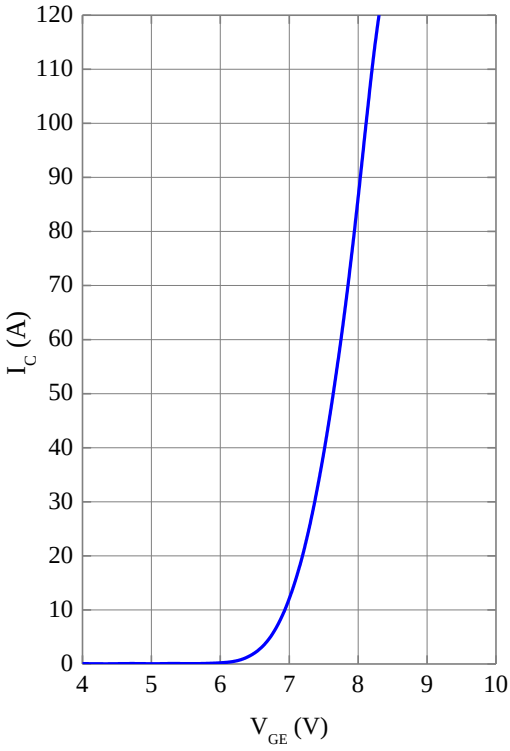


Figure 4. Transfer characteristic
(V_{CE}=20V)

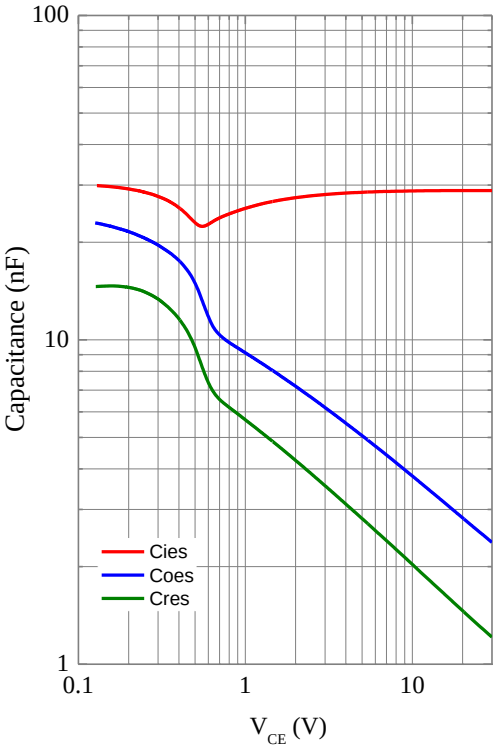


Figure 5. Capacitance as a function of collector-emitter voltage (V_{GE}=0V, f=1MHz)

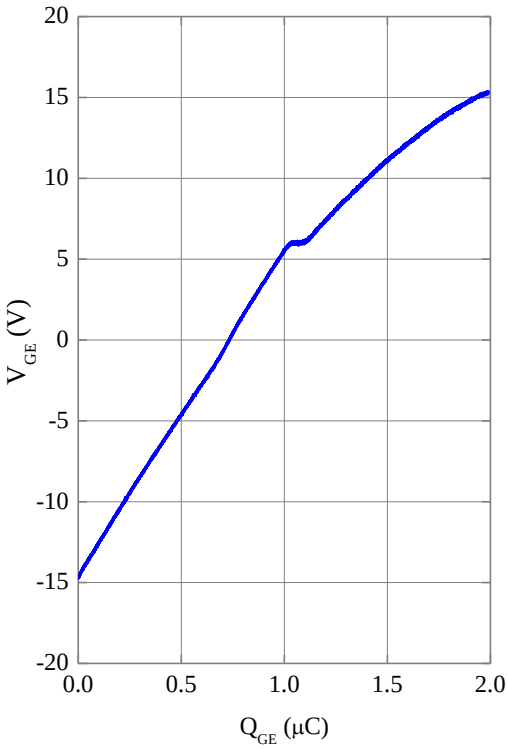
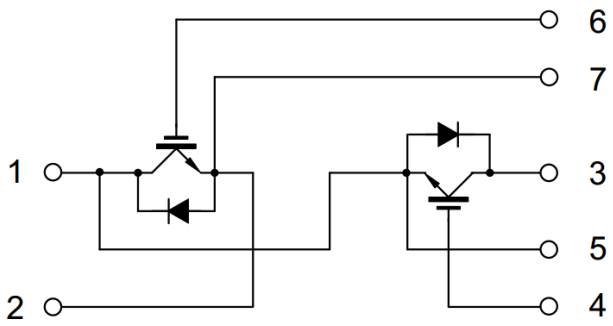
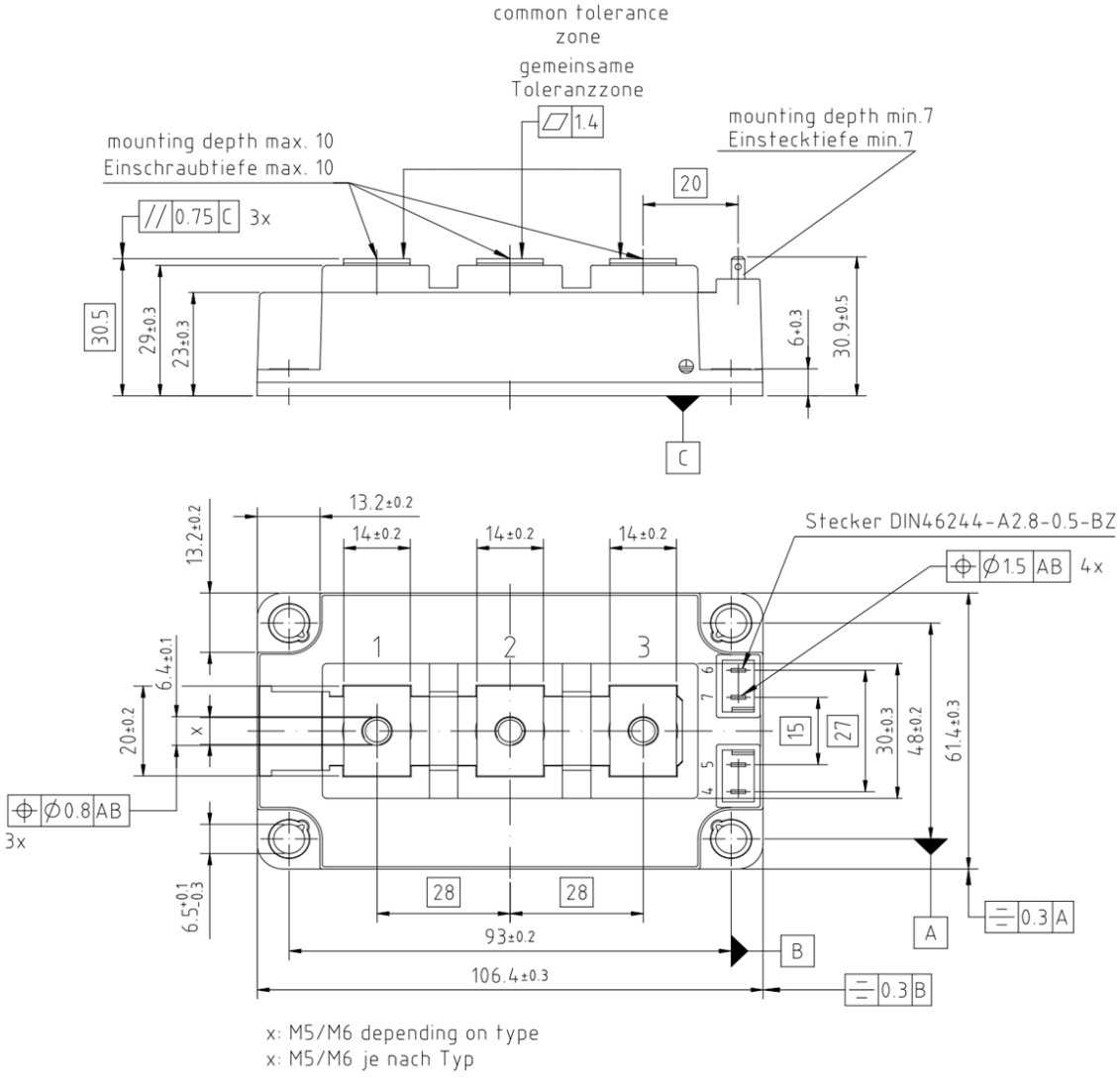


Figure 6. Gate charge

Circuit diagram



Package outlines



Revision history

Edition	Modification Record	Data from	Author	Date
1.0	initial	01368	WZW	18.12.2018