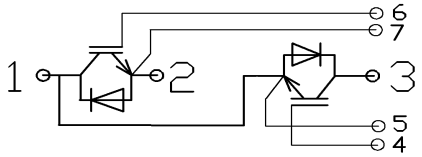
IGBT Module

Features

- 1200V 100A, $V_{CE(sat)(typ.)}$ = 2.1 V@100A
- Ultrafast switching speed
- Excellent short circuit ruggednesss
- 34mm half bridge module



Mechanical Data

- **Case:** D1(34mm)(plastic package). Lead free; RoHS compliant
- **Molding Compound Flammability Rating:** UL 94 V-0

Benefits

- Inverter for motor drive
- AC and DC servo drive amplifier
- Excellent Current Sharing in Parallel Operation

Applications

CREATEK's IGBTs offer ultrafast switching speed for application such as welding, inductive-heating, UPS and other high frequency applications

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GES}	Gate-Emitter Voltage	±30	V
I_C	Continuous Collector Current (T_C=25℃)	200	A
	Continuous Collector Current (T_C=100℃)	100	A
I_{CM}	Pulsed Collector Current (Note 1)	400	A
I_F	Diode Continuous Forward Current (T_C=100℃)	100	A
I_{FM}	Diode Maximum Forward Current (Note 1)	400	A
t_{sc}	Short Circuit Withstand Time	10	μs
$t_{sc\ (Max)}$	Maximum Short Circuit Withstand Time	>40	μs
Isc	Short Circuit Current	890	A
P_D	Maximum Power Dissipation (T_C=25℃)	1500	W
	Maximum Power Dissipation (T_C=100℃)	700	W
T_J	Operating Junction Temperature Range	-55 to +150	℃
T_{STG}	Storage Temperature Range	-55 to +150	℃

Thermal Characteristics

Symbol	Parameter	Max.	Units
$R_{th\ j\text{-}c}$	Thermal Resistance, Junction to case for IGBT	0.18	℃/ W
$R_{th\ j\text{-}c}$	Thermal Resistance, Junction to case for Diode	0.30	℃/W
Weight	Weight of Module	150	g

Electrical Characteristics (TC=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{CES}	Collector-EmitterBreakdownVoltage	V_{GE}=0V,I_C= 250μA	1200	-	-	V
I_{CES}	Collector-Emitter Leakage Current	V_{CE}= 1200V, V_{GE}=0V	-	-	250	μA
I_{GES}	Gate Leakage Current, Forward	V_{GE}=30V, V_{CE}=0V	-	-	100	nA
	Gate Leakage Current, Reverse	V_{GE}= -30V, V_{CE}=0V	-	-	-100	nA
$V_{GE(th)}$	GateThresholdVoltage	V_{GE}=V_{CE},I_C=250μA	4.5	-	5.7	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{GE}=15V,I_C=100A	-	2.1	2.4	V
$t_{d(on)}$	Turn-on Delay Time	V_{CC}=600V V_{GE}=± 15V I_C=100A R_G=10Ω Inductive Load T_C=25℃	-	290	-	ns
t_r	Turn-on Rise Time		-	106	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	760	-	ns
t_f	Turn-off Fall Time		-	124	-	ns
Eon	Turn-on Switching Loss		-	12.30	-	mJ
Eoff	Turn-off Switching Loss		-	4.60	-	mJ
Ets	Total Switching Loss		-	16.90	-	mJ
C_{ies}	InputCapacitance	V_{CE}=25V V_{GE}=0V f = 1MHz	-	8200	-	pF
C_{oes}	OutputCapacitance		-	1100	-	pF
C_{res}	ReverseTransferCapacitance		-	650	-	pF
R_{Gint}	Integrated gate resistor	f=1M;Vpp=1V		3.5		Ω

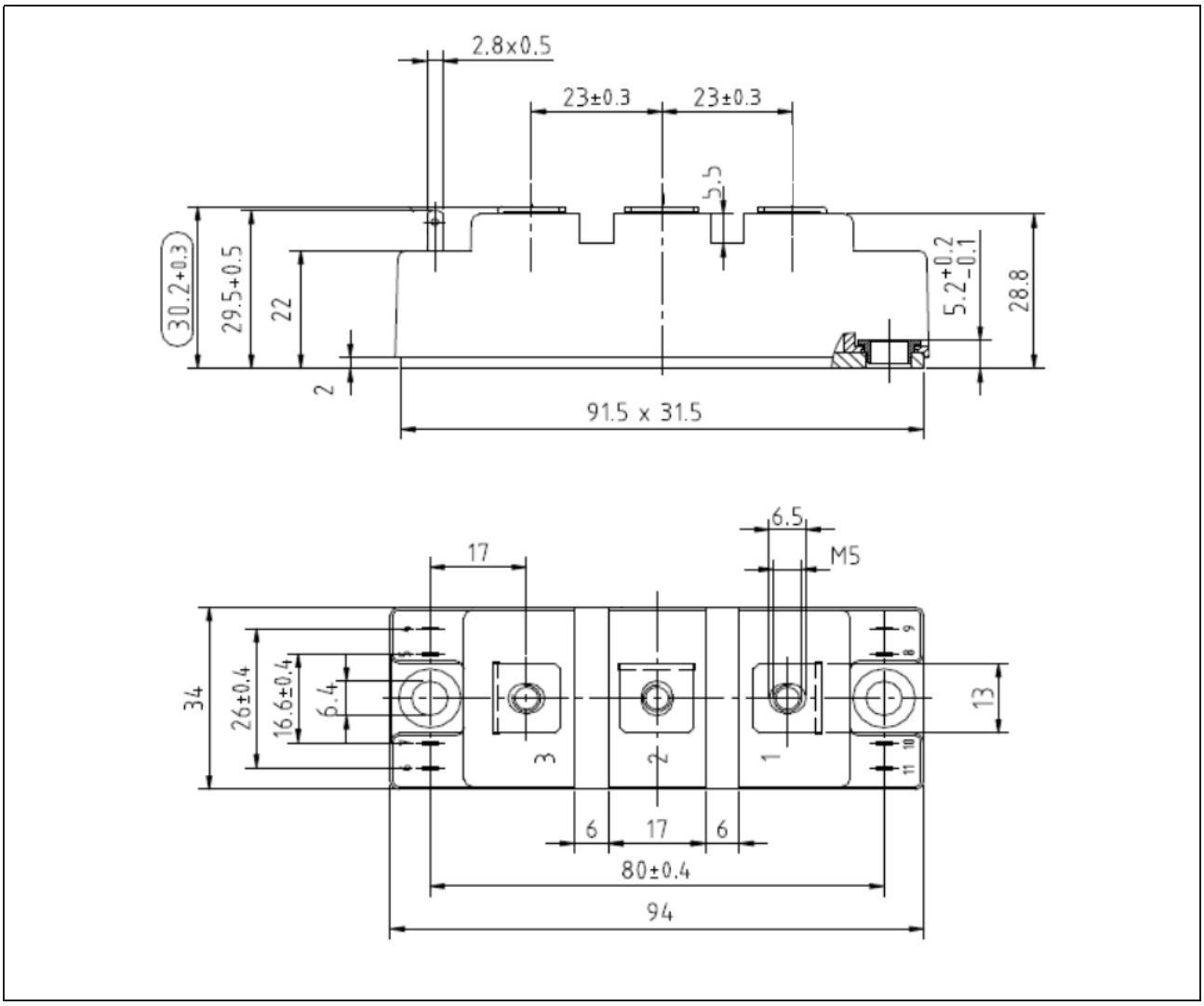
Electrical Characteristics of Diode (TC=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	I_F=100A	-	1.9		V
t_{rr}	Diode Reverse Recovery Time	V_{CE} = 600V I_F= 100A dI_F/dt = 500A/us	-	155		ns
I_{rr}	Diode peak Reverse Recovery Current		-	71		A
Q_{rr}	Diode Reverse Recovery Charge		-	5930		nC

Notes：

1. Repetitive Rating: Pulse width limited by maximum junction temperature

Package Dimensions(mm)



Ordering information

Order code	Package	Packaging option	Base quantity	Packaging specification
GPK100HF120D1	D1(32mm)	BOX	16pcs /BOX	

Revision history

Date	Revision	Changes
23-May-2012	1.0	Initial release

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