

### Electrical Features

- Trench/Fieldstop IGBT
- Half-bridge
- Standard package
- Including anti-parallel FRD



### Typical Applications

- High Power Converters
- UPS Systems
- Welding Machine

### IGBT, Inverter

Maximum Rated Values							
Symbol	Item	Conditions	Rating			Unit	
IGBT							
$V_{CES}$	Collector-emitter voltage	$T_{vj}=25^{\circ}\text{C}$	1700			V	
$V_{GES}$	Gate-emitter voltage	-	$\pm 20$			V	
$I_C$	Collector current,DC	$T_C=100^{\circ}\text{C}, T_{vj}=175^{\circ}\text{C}$	100			A	
$I_{CRM}$	Repetitive peak collector current	$t_p=1\text{ms}$	200			A	
$P_{tot}$	Total power dissipation	$T_C=25^{\circ}\text{C}, T_{vj}=175^{\circ}\text{C}$				W	
Characteristics Values							
Symbol	Item	Conditions	Values			Unit	
IGBT			Min.	Typ.	Max.		
$I_{CES}$	Collector-emitter cut-off current	$V_{CE}=1700\text{V}, V_{GE}=0\text{V}, T_{vj}=25^{\circ}\text{C}$	-	-	1	mA	
$I_{GES}$	Gate leakage current	$V_{CE}=0\text{V}, V_{GE}=20\text{V}, T_{vj}=25^{\circ}\text{C}$	-	-	250	nA	
$V_{GE(th)}$	Gate-emitter threshold voltage	$I_C=3\text{mA}, V_{CE}=V_{GE}, T_{vj}=25^{\circ}\text{C}$	5.2	5.92	6.4	V	
$V_{CESat}$	Collector-emitter saturation voltage	$I_C=100\text{A}$ $V_{GE}=15\text{V}$	$T_{vj}=25^{\circ}\text{C}$	-	2.2		2.5
			$T_{vj}=125^{\circ}\text{C}$	-	2.7		-
			$T_{vj}=150^{\circ}\text{C}$	-	-	-	
$C_{ies}$	Input capacitance	$V_{CE}=25\text{V}, V_{GE}=0\text{V}$	-	8.63	-	nF	
$C_{res}$	Reverse transfer capacitance	$f=1\text{MHz}, T_{vj}=25^{\circ}\text{C}$	-	0.50	-		
$Q_G$	Gate charge	$V_{GE}=-15\text{V}\dots+15\text{V}$	-	0.94	-	uC	

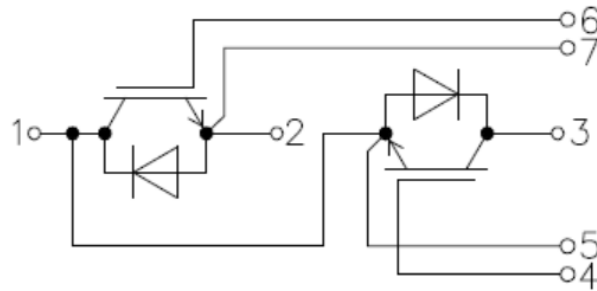
$t_{d(on)}$	Turn-on delay time	$V_{CC}=900V,$ $I_C=100A,$ $V_{GE}=\pm 15V,$ $R_{G(on)}=2.4\ \Omega,$ $R_{G(off)}=2.4\ \Omega,$ $di/dt=873A/\mu s$ $(T_{vj}=125^\circ C)$ $du/dt=4301V/\mu s$ $(T_{vj}=125^\circ C)$	$T_{vj}=25^\circ C$	-	126	-	ns
			$T_{vj}=125^\circ C$	-	149	-	
			$T_{vj}=150^\circ C$	-		-	
$t_r$	Rise time		$T_{vj}=25^\circ C$	-	85	-	
			$T_{vj}=125^\circ C$	-	93	-	
			$T_{vj}=150^\circ C$	-		-	
$t_{d(off)}$	Turn-off delay time		$T_{vj}=25^\circ C$	-	208	-	
			$T_{vj}=125^\circ C$	-	293	-	
			$T_{vj}=150^\circ C$	-		-	
$t_f$	Fall time		$T_{vj}=25^\circ C$	-	436	-	
		$T_{vj}=125^\circ C$	-	600	-		
		$T_{vj}=150^\circ C$	-		-		
$E_{on}$	Turn-on energy (per pulse)	$T_{vj}=25^\circ C$	-	22.5	-	mJ	
		$T_{vj}=125^\circ C$	-	34.4	-		
		$T_{vj}=150^\circ C$	-		-		
$E_{off}$	Turn-off energy (per pulse)	$T_{vj}=25^\circ C$	-	21.9	-		
		$T_{vj}=125^\circ C$	-	28.1	-		
		$T_{vj}=150^\circ C$	-		-		
$R_{thJC}$	Thermal resistance, junction to case	per IGBT	-		-	K/W	
$R_{thCH}$	Thermal resistance, case to heatsink	per IGBT/ $\lambda_{grease}=1W/(m \cdot K)$	-		-	K/W	
$T_{vjop}$	Temperature under switching conditions		-40		150	$^\circ C$	
<b>Diode, Inverter</b>							
<b>Maximum Rated Values</b>							
Symbol	Item	Conditions			Rating	Unit	
$V_{RRM}$	Repetitive peak reverse voltage	$T_{vj}=25^\circ C$			1700	V	
$I_F$	Forward current, DC	$T_C=100^\circ C, T_{vj}=175^\circ C$			100	A	
$I_{FRM}$	Repetitive peak forward current	$t_p=1ms$			200	A	
<b>Characteristic Values</b>							
$V_F$	Continuous forward voltage	$I_F=100A$ $V_{GE}=0V$	$T_{vj}=25^\circ C$	-	1.96	2.5	V
			$T_{vj}=125^\circ C$	-	1.73	-	
			$T_{vj}=150^\circ C$	-		-	
$I_{RM}$	Peak reverse recovery current	$V_R=900V$ $I_F=100A$ $-di_F/dt=2736A/\mu s$ $(T_{vj}=125^\circ C)$	$T_{vj}=25^\circ C$	-	103	-	A
			$T_{vj}=125^\circ C$	-	133	-	
			$T_{vj}=150^\circ C$	-		-	
$t_{rr}$	Reverse recovery time		$T_{vj}=25^\circ C$	-	123	-	ns
			$T_{vj}=125^\circ C$	-	578	-	
			$T_{vj}=150^\circ C$	-		-	
$Q_r$	Recovered charge	$T_{vj}=25^\circ C$	-	15.4	-	$\mu C$	
		$T_{vj}=125^\circ C$	-	31.7	-		
		$T_{vj}=150^\circ C$	-		-		

E <sub>rec</sub>	Reverse recovery energy		T <sub>vj</sub> =25°C	-	9.0	-	mJ
			T <sub>vj</sub> =125°C	-	17.9	-	
			T <sub>vj</sub> =150°C	-		-	
R <sub>thJC</sub>	Thermal resistance, junction to case	per diode		-		-	K/W
R <sub>thCH</sub>	Thermal resistance, case to heatsink	per diode/ λgrease=1W/(m·K)		-		-	K/W
T <sub>vjop</sub>	Temperature under switching conditions			-40		150	°C

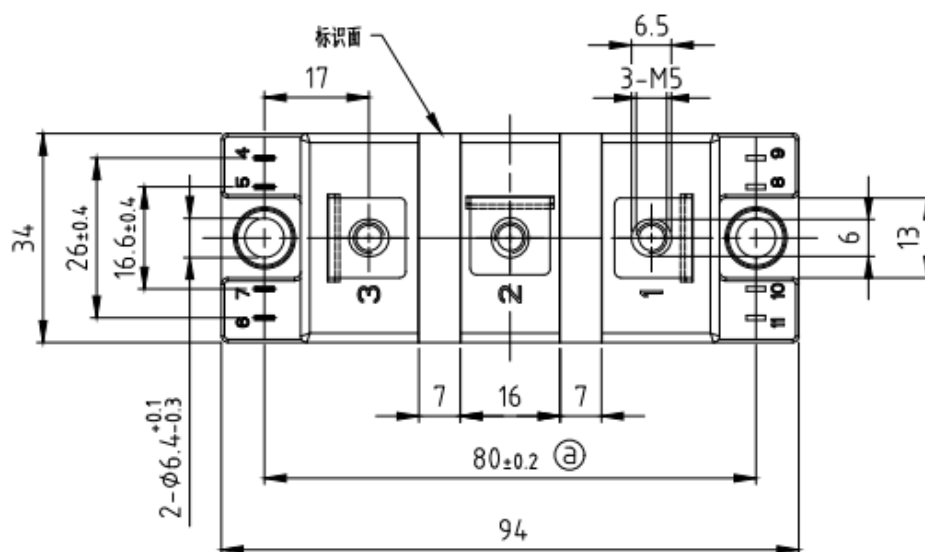
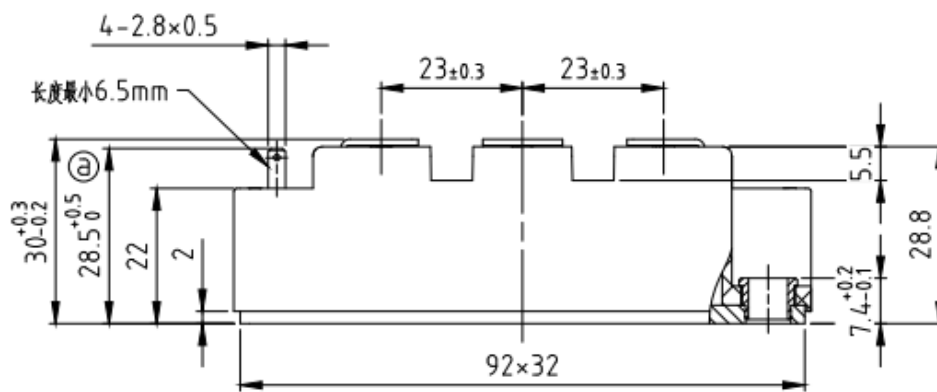
**Module**

Symbol	Item	Conditions	Rating			Unit
V <sub>ISOL</sub>	Isolation voltage	Terminals to baseplate, RMS, f=50Hz, t=1min	4000			V
-	Material of module baseplate	-	Cu			-
-	Internal isolation	Basic insulation(class 1, IEC 61140)	Al <sub>2</sub> O <sub>3</sub>			-
T <sub>stg</sub>	Storage temperature	-	-40~125			°C
Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
M	Mounting torque for module mounting	Screw M6	3.0	-	5.0	Nm
	Terminal connection torque	Screw M5	2.5	-	5.0	Nm
d <sub>Creep</sub>	Creepage distance	Terminal to terminal	-	23	-	mm
		Terminal to base plate	-	29	-	
d <sub>Clear</sub>	Clearance	Terminal to terminal	-	11	-	mm
		Terminal to base plate	-	23	-	
m	Weight	-	-	150	-	g

Circuit diagram headline



Package outlines (Unit: mm)



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1	2023.9.4	初版规格书发布，版本为V1.0	2023 9 Ver1.0	梁华文