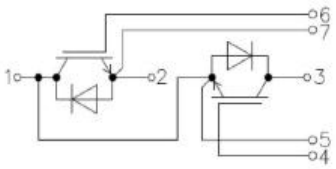
Features

- Trench/Fieldstop IGBT
- Half-bridge
- Standard package
- High short circuit capability
- Including anti-parallel FWD



Application

- Frequency converter
- UPS
- High Power Converters
- Motor Drives
- Wind Turbines

Pb-Free RoHS HAL Halogen-Free

IGBT，Inverter

Absolute Maximum Ratings (TC=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{CES}	Collector Emitter Voltage	T_J=25°C	1200	V
V_{GES}	Gate Emitter Voltage		±20	V
I_C	DC Collector Current	Tc=100°C,T_{jmax}=175°C	400	A
I_{CRM}	Repetitive peak collector current	tp=1ms	800	A
t_{SC}	Short circuit withstand time	V_{GE}=15V, V_{CC}=600V, T_{vj}≤150°C	10	us
P_{tot}	Power Dissipation Per IGBT	Tc=25°C,T_{jmax}=175°C	2419	W

Diode，Inverter

Absolute Maximum Ratings (TC=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{RRM}	Repetitive Reverse Voltage	T_J=25°C	1200	V
I_F	Forward current,DC		400	A
I_{FRM}	Repetitive peak forward current	tp=1ms	800	A

IGBT，Inverter

Electrical Characteristics (TC=25℃ unless otherwise noted)							
Symbol	**Parameter**	**Condition**		**Min**	**Typ**	**Max**	**Unit**
Static Electrical Characteristics @ TC= 25°C (unless otherwise stated)							
$V_{GE(th)}$	Gate Emitter Threshold Voltage	V_{CE}=V_{GE}, I_C=16mA		5.2	5.7	6.4	V
$V_{CE(sat)}$	Collector - Emitter Saturation Voltage	I_C=400A, V_{GE}=15V, T_J=25℃		--	1.65	--	V
		I_C=400A, V_{GE}=15V, T_J=125℃		--	1.90	--	V
		I_C=400A, V_{GE}=15V, T_J=150℃		--	1.93	--	V
I_{CES}	Collector Leakage Current	V_{CE}=1200V, V_{GE}=0V, T_J=25℃		--	--	1.0	mA
I_{GES}	Gate Leakage Current	V_{CE}=0V,V_{GE}=±20V, T_J=25℃		--	--	250	nA
Q_g	Gate Charge	V_{CE}=600V, I_C=400A , V_{GE}=15V		--	4.1	--	μC
C_{ies}	Input Capacitance	V_{CE}=25V, V_{GE}=0V, f =1MHz		--	43.6	--	nF
C_{res}	Reverse Transfer Capacitance			--	1.4	--	nF
R_g	Internal gate resistance	T_J=25℃		--	0.43	--	Ω
$t_{d(on)}$	Turn-on Delay Time	V_{CC}=600V,I_C=400A $R_{G(on)}$ =5.1Ω,$R_{G(off)}$ =5.1Ω V_{GE}=±15V, Lload=100uH di/dt=5390A/μs (Tvj=150℃) du/dt=2546V/μs (Tvj=150℃)	T_J=25℃	--	166	--	ns
			T_J=125℃	--	156	--	ns
			T_J=150℃	--	155	--	ns
t_r	Turn-on Rise Time		T_J=25℃	--	163	--	ns
			T_J=125℃	--	163	--	ns
			T_J=150℃	--	169	--	ns
$t_{d(off)}$	Turn-Off Delay Time		T_J=25℃	--	833	--	ns
			T_J=125℃	--	924	--	ns
			T_J=150℃	--	931	--	ns
t_f	Turn-Off Fall Time		T_J=25℃	--	134	--	ns
			T_J=125℃	--	270	--	ns
			T_J=150℃	--	296	--	ns
E_{on}	Turn on Energy		T_J=25℃		67.7		mJ
			T_J=150℃	--	93.3	--	mJ
E_{off}	Turn off Energy	V_{CC}=600V,I_C=200A $R_{G(on)}$ =2.5Ω,$R_{G(off)}$ =2.5Ω V_{GE}=±15V, Inductive Load	T_J=25℃	--	52.5	--	mJ
			T_J=150℃	--	67.4	--	mJ
R_{thCH}	Thermalresistance,case to heatsink (Per IGBT/λgrease=1W/(m·K))			--	--	--	K/W
T_{vjop}	Temperature under switching conditions			-40	--	150	℃
R_{thJC}	Junction to Case Thermal Resistance (Per IGBT)			--	0.062	--	K/W

Diode，Inverter

Absolute Maximum Ratings (TC=25℃unless otherwis							
Symbol	**Parameter**			**Min**	**Typ**	**Max**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)							
V_F	Forward Voltage	I_F=400A , V_{GE}=0V, T_J=25°C		--	1.60	--	V
		I_F=400A , V_{GE}=0V, T_J=125°C		--	1.35	--	
		I_F=400A , V_{GE}=0V, T_J=150°C		--	1.30	--	
t_{rr}	Reverse Recovery Time	I_F=400A , V_R=600V dIF/dt=-4264A/μs T_J=150°C	T_J=25°C	--	202	--	ns
			T_J=125°C	--	388	--	ns
			T_J=150°C	--	547	--	ns
I_{RM}	Peak reverse recovery current		T_J=25°C	--	191	--	A
			T_J=125°C	--	328	--	A
			T_J=150°C	--	364	--	A
Q_R	Recovered charge		T_J=25°C	--	30.1	--	μC
			T_J=125°C	--	82.1	--	μC
			T_J=150°C	--	101.9	--	μC
E_{rec}	Reverse Recovery Energy		T_J=25°C	--	11.1	--	mJ
			T_J=125°C	--	31.6	--	mJ
			T_J=150°C	--	39.6	--	mJ
T_{vjop}	Temperature under switching conditions			-40	--	150	℃
R_{thJCD}	Junction to Case Thermal Resistance （Per Diode）			--	0.11	--	K/W

Module

Absolute Maximum Ratings (TC=25℃unless otherwise note						
Symbol	**Parameter**		**Rating**			**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)						
V_{ISOL}	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_2O_3			
T_{stg}	Storage Temperature		-40~125			℃
Symbol	**Parameter**		**Min**	**Typ**	**Max**	**Unit**
M	Mounting torque for module mounting	Screw M6	3	-	6	Nm
	Terminal connection torque	Screw M6	2.5	-	5	Nm
ds	Creepage distance	Terminal to terminal	-	23	-	mm
		Terminal to base plate	-	29	-	mm
da	Clearance	Terminal to terminal	-	11	-	mm
		Terminal to base plate	-	23	-	
m	Weight			315		g

Typical Operating Characteristics

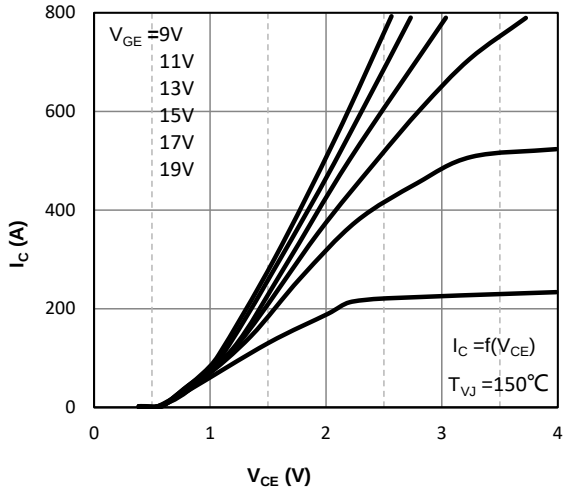


Figure 1. Typical Output Characteristics IGBT

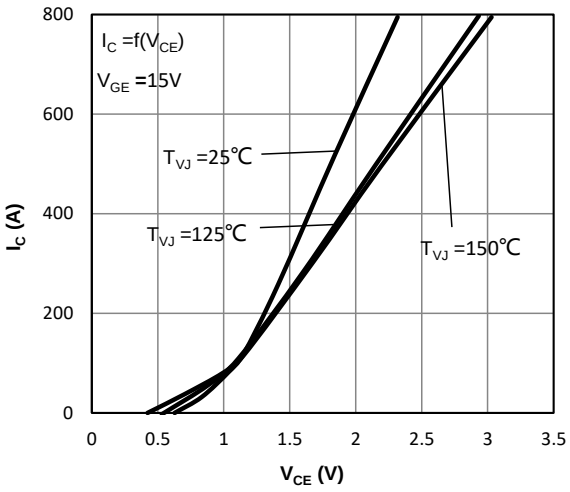


Figure 2. Typical Output Characteristics IGBT

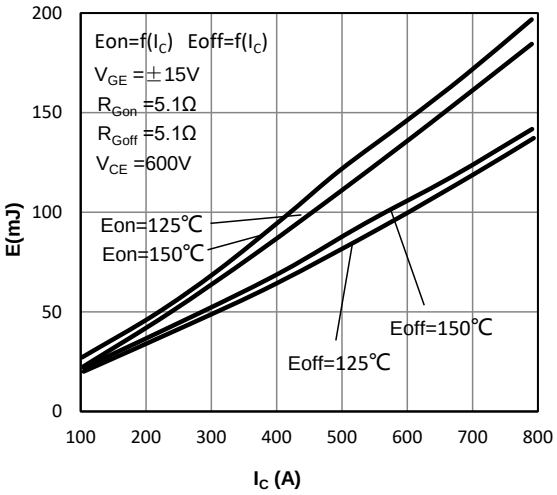


Figure 3. Typical Switching Losser IGBT

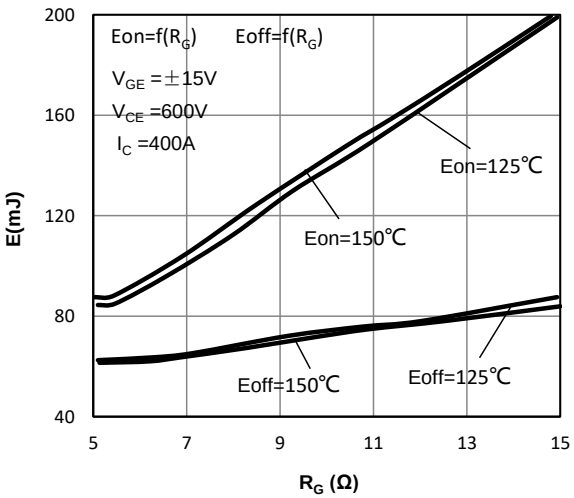


Figure 4. Typical Switching Losser IGBT

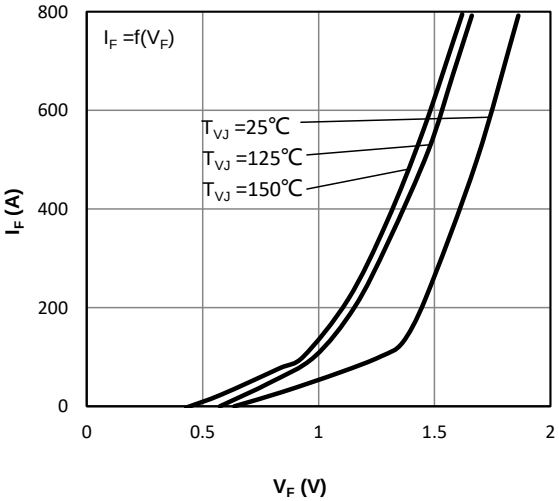


Figure 5. Typical Forward Characteristic of Diode

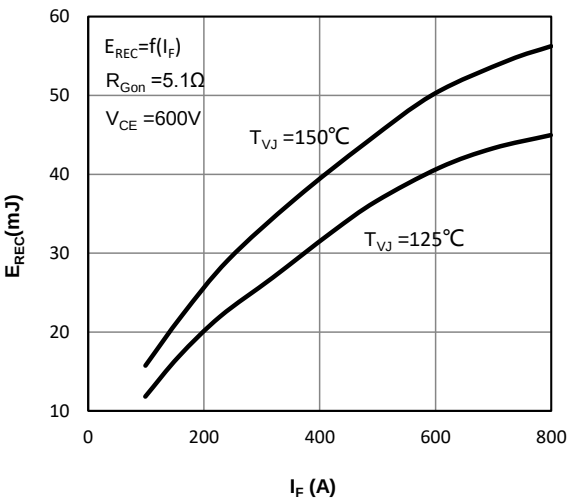


Figure 6. Typical Switching Losser Diode

Typical Operating Characteristics

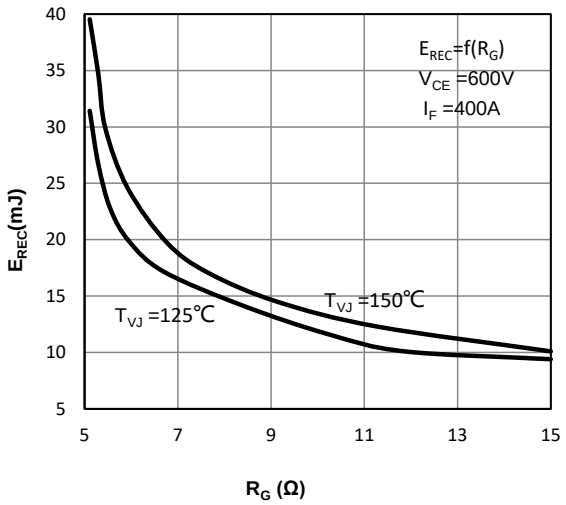
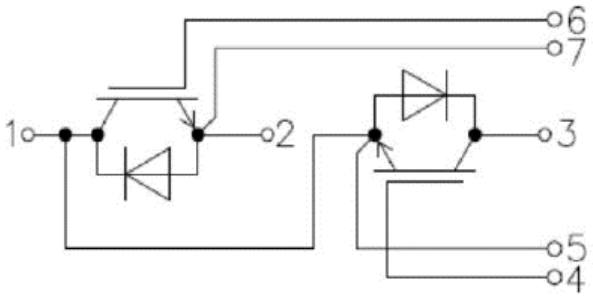


Figure 7. Typical Switching Losser Diode

Circuit diagram headline



Package outlines（Unit：mm）