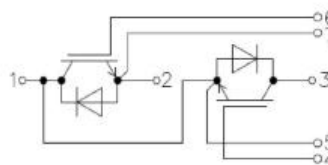


Features

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



Application

- Frequency converter
- UPS



Halogen-Free

IGBT, Inverter

Absolute Maximum Ratings (TC=25°C 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	200	A
I _{CRM}	Repetitive peak collector current	tp=1ms	400	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	1071	W

Diode, Inverter

Absolute Maximum Ratings (TC=25°C 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		200	A
I _{FRM}	Repetitive peak forward current	tp=1ms	400	A

IGBT, Inverter

Electrical Characteristics (TC=25℃ unless otherwise noted)								
Symbol	Parameter	Condition		Min	Typ	Max	Unit	
Static Electrical Characteristics @ TC= 25℃ (unless otherwise stated)								
V _{GE(th)}	Gate Emitter Threshold Voltage	V _{CE} =V _{GE} , I _C =7.4mA		5.0	6.0	7.0	V	
V _{CE(sat)}	Collector - Emitter Saturation Voltage	I _C =200A, V _{GE} =15V, T _J =25℃		--	2.0	2.4	V	
		I _C =200A, V _{GE} =15V, T _J =125℃		--	--	--	V	
		I _C =200A, V _{GE} =15V, T _J =150℃		--	--	--	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 =200A , V _{GE} =15V		--	1.2	--	μC	
C _{ies}	Input Capacitance	V _{CE} =25V, V _{GE} =0V, f =1MHz		--	15.6	--	nF	
C _{res}	Reverse Transfer Capacitance			--	0.48	--	pF	
t _{d(on)}	Turn-on Delay Time	V _{CC} =600V,I _C =200A R _{G(on)} =2.5Ω,R _{G(off)} =2.5Ω V _{GE} =±15V, Inductive Load	T _J =25℃	--	55	--	ns	
			T _J =125℃	--	--	--	ns	
			T _J =150℃	--	--	--	ns	
t _r	Turn-on Rise Time		T _J =25℃	--	48	--	ns	
			T _J =125℃	--	--	--	ns	
			T _J =150℃	--	--	--	ns	
t _{d(off)}	Turn-Off Delay Time		T _J =25℃	--	237	--	ns	
			T _J =125℃	--	--	--	ns	
			T _J =150℃	--	--	--	ns	
t _f	Turn-Off Fall Time		T _J =25℃	--	181	--	ns	
			T _J =125℃	--	--	--	ns	
			T _J =150℃	--	--	--	ns	
E _{on}	Turn on Energy		T _J =25℃		8.8		mJ	
			T _J =150℃	--	--	--	mJ	
E _{off}	Turn off Energy		T _J =125℃		13.6		mJ	
			T _J =150℃	--	--	--	mJ	
R _{thJC}	Junction to Case Thermal Resistance (Per IGBT)			--	--	0.14	K/W	

Diode, Inverter

Absolute Maximum Ratings (TC=25℃ unless otherwise note						
Symbol	Parameter		Min	Typ	Max	Unit
Common Ratings (TC=25℃ Unless Otherwise Noted)						
V _F	Forward Voltage	I _F =200A , V _{GE} =0V, T _J =25℃	--	2.0	2.6	V
		I _F =200A , V _{GE} =0V, T _J =125℃	--	--	--	
		I _F =200A , V _{GE} =0V, T _J =150℃	--	--	--	
t _{rr}	Reverse Recovery Time	I _F =200A , V _R =600V dI _F /dt=-4375A/μs T _J =25℃	--	101	--	ns
I _{RM}	Peak reverse recovery current		--	168	--	A
Q _R	Repetitive peak forward current		--	16.5	--	μC
E _{rec}	Reverse Recovery Energy		--	7.0	--	mJ
R _{thJCD}	Junction to Case Thermal Resistance （Per Diode）		--	--	0.2	K/W

Module

Absolute Maximum Ratings (TC=25℃ unless otherwise note)						
Symbol	Parameter		Rating			Unit
Common Ratings (TC=25℃ Unless Otherwise Noted)						
V _{ISOL}	Isolation voltage	Terminals to baseplate, RMS,f=50Hz,t=1min	2500			V
-	Material of module baseplate	-	Cu			
-	Internal isolation	Basic insulation(class 1, IEC 61140)	Al ₂ O 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

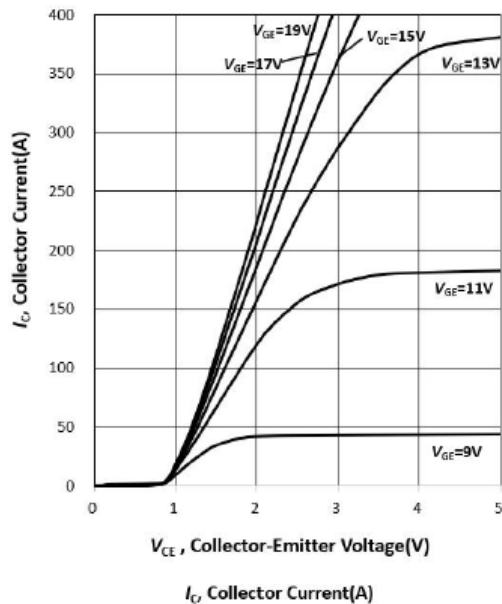


Figure 1 IGBT output characteristic
($T_{vj}=25^{\circ}\text{C}$)

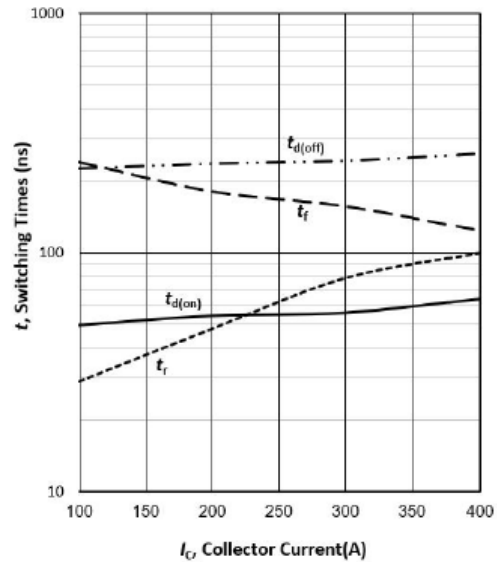


Figure 2 IGBT switching times as a function of collector current
(inductive load, $T_{vj}=25^{\circ}\text{C}$,
 $V_{CE}=600\text{V}$, $V_{GE}=15/15\text{V}$, $R_G=2.5\ \Omega$)

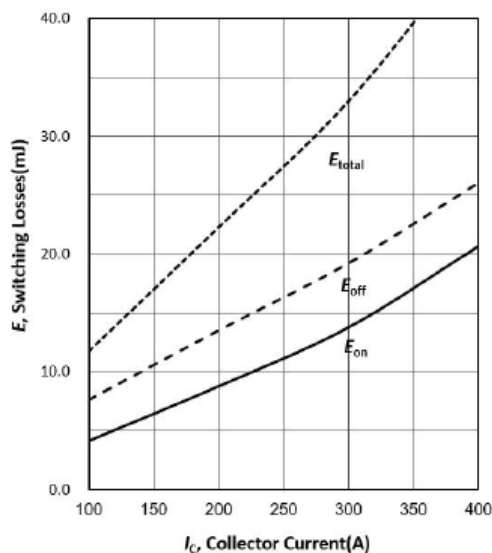


Figure 3 IGBT switching energy losses as a function of collector current
(inductive load, $T_{vj}=25^{\circ}\text{C}$,
 $V_{CE}=600\text{V}$, $V_{GE}=15/15\text{V}$, $R_G=2.5\ \Omega$)

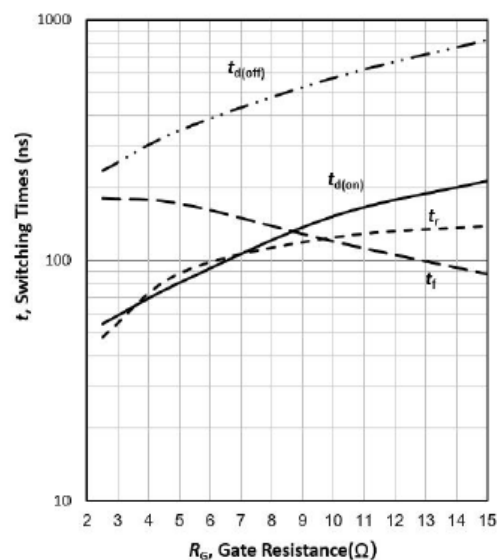


Figure 4 IGBT switching times as a function of gate resistor
(inductive load, $T_{vj}=25^{\circ}\text{C}$,
 $V_{CE}=600\text{V}$, $V_{GE}=15/15\text{V}$, $I_C=200\text{A}$)

Typical Operating Characteristics

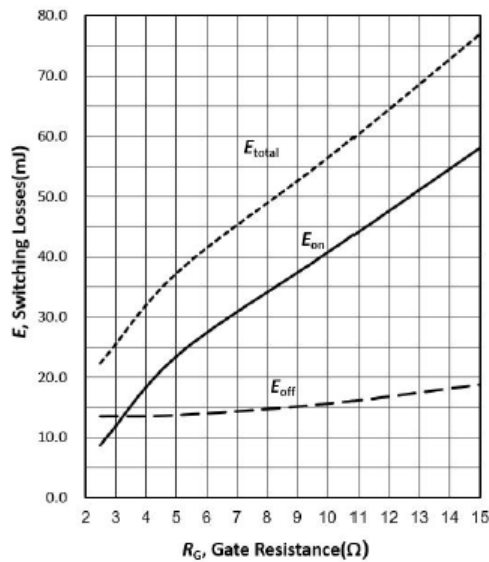


Figure 5 IGBT switching energy losses as a function of gate resistor
(inductive load, $T_{vj}=25^{\circ}\text{C}$, $V_{CE}=600\text{V}$, $V_{GE}=-15/15\text{V}$, $I_C=200\text{A}$)

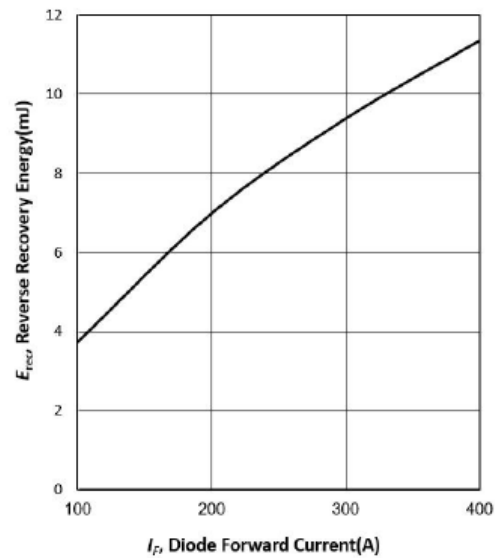


Figure 6 Diode reverse recovery energy as a function of forward current
($T_{vj}=25^{\circ}\text{C}$, $V_{CE}=600\text{V}$, $R_G=2.5\ \Omega$)

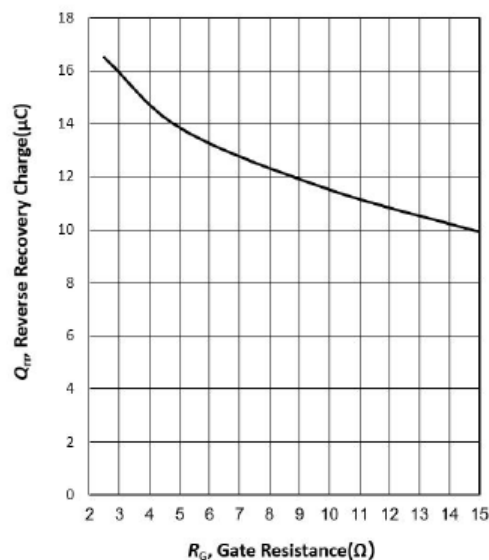


Figure 7 Diode reverse recovery charge as a function of gate resistor
($T_{vj}=25^{\circ}\text{C}$, $V_{CE}=600\text{V}$, $I_F=200\text{A}$)

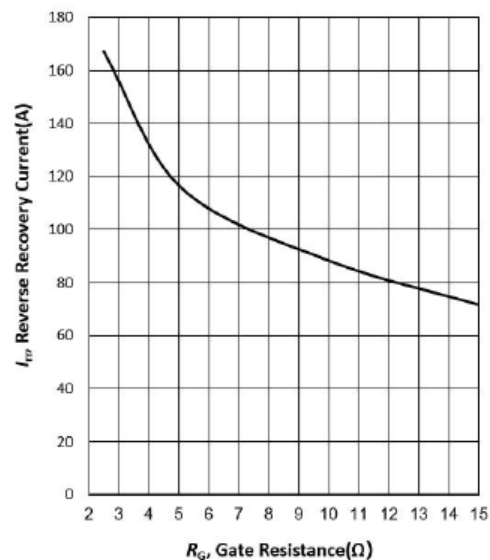
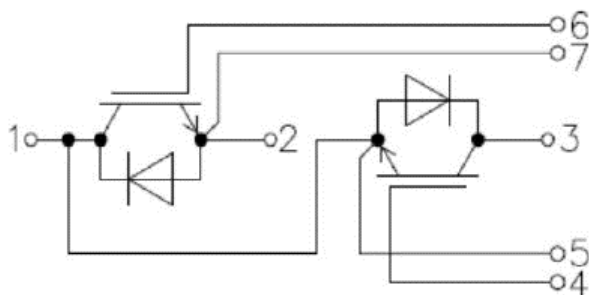


Figure 8 Diode peak reverse recovery current as a function of gate resistor
($T_{vj}=25^{\circ}\text{C}$, $V_{CE}=600\text{V}$, $I_F=200\text{A}$)

Circuit diagram headline



Package outlines (Unit: mm)

