

Electrical Features

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



Typical Applications

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

IGBT, Inverter

Maximum Rated Values							
Symbol	Item	Conditions	Rating			Unit	
IGBT							
V_{CES}	Collector-emitter voltage	$T_{vj}=25^{\circ}C$	1700			V	
V_{GES}	Gate-emitter voltage	-	± 20			V	
I_C	Collector current,DC	$T_C=100^{\circ}C, T_{vj}=175^{\circ}C$	300			A	
I_{CRM}	Repetitive peak collector current	$t_p=1ms$	600			A	
t_{SC}	Short circuit withstand time	$V_{GE}=15V, V_{CC}=800V, T_{vj}\leq 150^{\circ}C$	10			us	
P_{tot}	Total power dissipation	$T_C=25^{\circ}C, T_{vj}=175^{\circ}C$	1807			W	
Characteristics Values							
Symbol	Item	Conditions	Values			Unit	
IGBT			Min.	Typ.	Max.		
I_{CES}	Collector-emitter cut-off current	$V_{CE}=1700V, V_{GE}=0V, T_{vj}=25^{\circ}C$	-	-	1	mA	
I_{GES}	Gate leakage current	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25^{\circ}C$	-	-	250	nA	
$V_{GE(th)}$	Gate-emitter threshold voltage	$I_C=12mA, V_{CE}=V_{GE}, T_{vj}=25^{\circ}C$	5.2	5.68	6.5	V	
V_{CESat}	Collector-emitter saturation voltage	$I_C=300A$	$T_{vj}=25^{\circ}C$	-	1.95		-
		$V_{GE}=15V$	$T_{vj}=125^{\circ}C$	-	-		-
			$T_{vj}=150^{\circ}C$	-	-	-	
C_{ies}	Input capacitance	$V_{CE}=25V, V_{GE}=0V$ $f=1MHz, T_{vj}=25^{\circ}C$	-	29.2	-	nF	
C_{oes}	Output capacitance		-	0.98	-		
C_{res}	Reverse transfer capacitance		-	0.88	-		
Q_G	Gate charge	$V_{CC}=900V, I_C=300A, V_{GE}=15V$	-	3.4	-	uC	
R_g	Internal gate resistance	$T_{vj}=25^{\circ}C$	-	2	-	Ω	

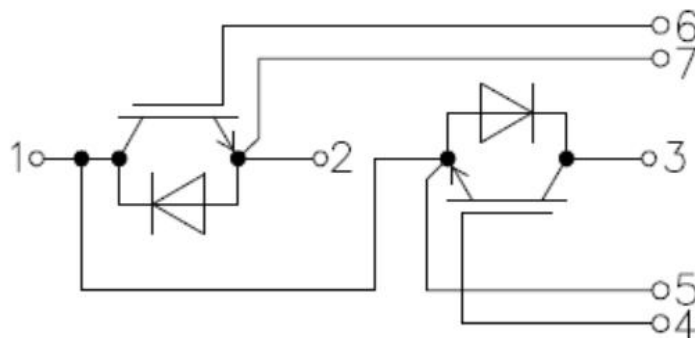
$t_{d(on)}$	Turn-on delay time	$V_{CC}=900V,$ $I_C=300A,$ $V_{GE}=\pm 15V,$ $R_{G(on)}=2.4\ \Omega,$ $R_{G(off)}=2.4\ \Omega,$ Inductive load	$T_{vj}=25^\circ C$	-	309	-	ns
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
t_r	Rise time		$T_{vj}=25^\circ C$	-	125	-	
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
$t_{d(off)}$	Turn-off delay time		$T_{vj}=25^\circ C$	-	489	-	
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
t_f	Fall time		$T_{vj}=25^\circ C$	-	384	-	
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
E_{on}	Turn-on energy (per pulse)	$T_{vj}=25^\circ C$	-	70.5	-	mJ	
		$T_{vj}=125^\circ C$	-	-	-		
		$T_{vj}=150^\circ C$	-	-	-		
E_{off}	Turn-off energy (per pulse)	$T_{vj}=25^\circ C$	-	62.4	-		
		$T_{vj}=125^\circ C$	-	-	-		
		$T_{vj}=150^\circ C$	-	-	-		
R_{thJC}	Thermal resistance, junction to case	per IGBT	-	-	0.083	K/W	
R_{thCH}	Thermal resistance, case to heatsink	per IGBT/ $\lambda_{grease}=1W/(m \cdot K)$	-	0.033	-	K/W	
T_{vjop}	Temperature under switching conditions		-40		150	$^\circ C$	
Diode, Inverter							
Maximum Rated Values							
Symbol	Item	Conditions			Rating	Unit	
V_{RRM}	Repetitive peak reverse voltage	$T_{vj}=25^\circ C$			1700	V	
I_F	Forward current, DC				300	A	
I_{FRM}	Repetitive peak forward current	$t_p=1ms$			600	A	
Characteristic Values							
V_F	Continuous forward voltage	$I_F=300A$ $V_{GE}=0V$	$T_{vj}=25^\circ C$	-	1.85	-	V
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
I_{RM}	Peak reverse recovery current	$V_R=900V$ $I_F=300A$ $di_F/dt=-3531A/\mu s$	$T_{vj}=25^\circ C$	-	228	-	A
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
t_{rr}	Reverse recovery time		$T_{vj}=25^\circ C$	-	522	-	ns
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
Q_r	Recovered charge		$T_{vj}=25^\circ C$	-	43.3	-	μC
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	
E_{rec}	Reverse recovery energy		$T_{vj}=25^\circ C$	-	26.8	-	mJ
			$T_{vj}=125^\circ C$	-	-	-	
			$T_{vj}=150^\circ C$	-	-	-	

R_{thJC}	Thermal resistance, junction to case	per diode	-	-	0.13	K/W
R_{thCH}	Thermal resistance, case to heatsink	per diode/ $\lambda_{grease}=1W/(m \cdot K)$	-	0.051	-	K/W
T_{vjop}	Temperature under switching conditions		-40		150	°C

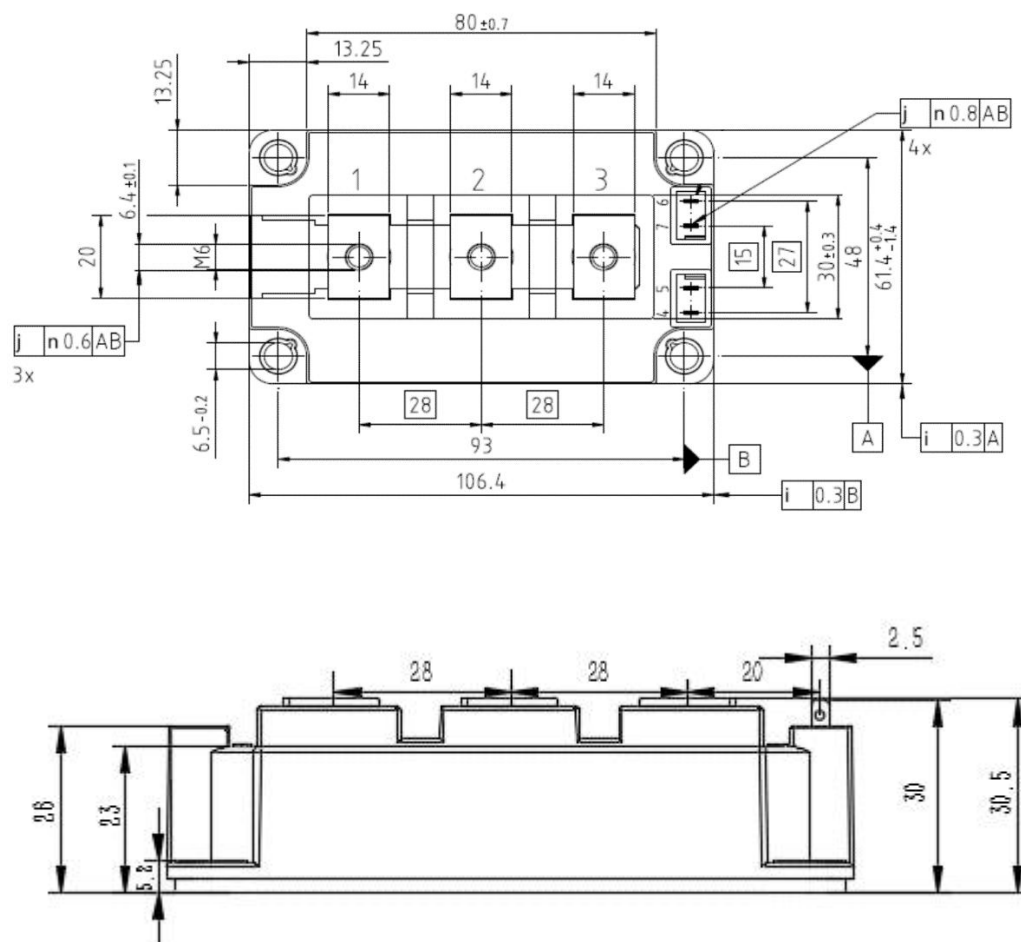
Module

Symbol	Item	Conditions	Rating			Unit
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			°C
Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
M	Mounting torque for module mounting	Screw M6	3.0	-	6.0	Nm
	Terminal connection torque	Screw M6	2.5	-	5.0	Nm
ds	Creepage distance	Terminal to terminal	-	23	-	mm
		Terminal to base plate	-	29	-	
da	Clearance	Terminal to terminal	-	11	-	mm
		Terminal to base plate	-	23	-	
m	Weight	-	-	315	-	g

Circuit diagram headline



Package outlines (Unit: mm)



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