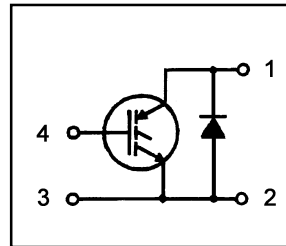


“SINGLE SWITCH” IGBT DOUBLE INT-A -PAK

Features

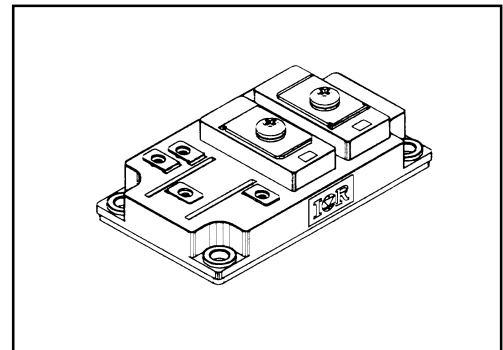
- Low loss, rugged IGBT SPT⁺ technology
- Optimized high operating frequencies 8-20 kHz in hard switching,
- Very low conduction and switching losses
- Smooth switching for good EMC
- Industry standard package
- Short circuit rated 10 μs



$V_{CES}=1200V$
 $V_{CE(on) \text{ typ.}}=2.5V$
 @ $V_{GE}=15V, I_C=400A$

Benefits

- Increased operating efficiency
- Direct mounting to heatsink
- Performance optimized for power conversion: UPS, SMPS, Welding, Motor Control
- Lower EMI, requires less snubbing



Absolute Maximum Ratings

	Parameter	Max.	Units
V_{CES}	Collector-to- Emitter Voltage	1200	V
$I_C @ T_C=25^\circ C$	Continuous Collector Current	550	A
$I_C @ T_C=85^\circ C$	Continuous Collector Current	400	
I_{CM}	Pulsed collector Current	800	
I_{LM}	Peak switching Current	800	
I_{FM}	Peak Diode Forward Current	800	
V_{GE}	Gate-to- Emitter Voltage	±20	V
V_{ISOL}	RMS Isolation Voltage, Any Terminal To Case, t=1 min	2500	W
$P_D @ T_C=25^\circ C$	Maximum Power Dissipation	2700	
$P_D @ T_C=85^\circ C$	Maximum Power Dissipation	1400	
T_J	Operating Junction Temperature Range	-40 to +150	°C
T_{STG}	Storage Temperature Range	-40 to +125	

Thermal / Mechanical Characteristics

	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to- Case- IGBT	-	0.045	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction-to- Case- Diode	-	0.09	
$R_{\theta CS}$	Thermal Resistance, Case-to- Sink- Module	0.1	-	N.m
	Mouting Torque, Case-to-Heatsink	-	4.0	
	Mouting Torque, Case-to-Terminal 1,2 & 3	-	3.0	
	Weight of Module	400	-	g

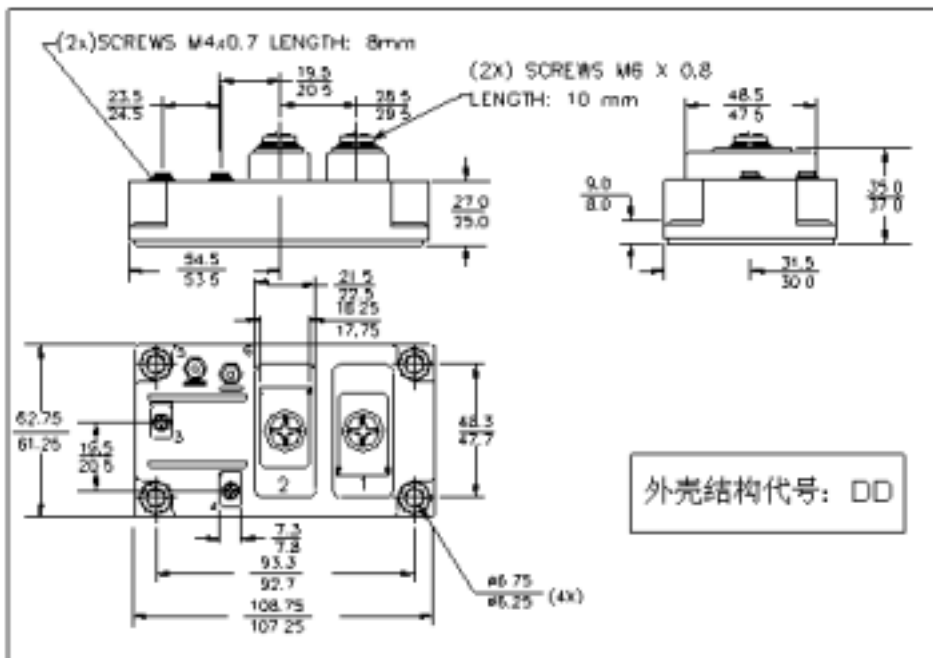
Electrical Characteristics @ T_J=25°C(unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)CES}	Collector-to-Emitter Breakdown Voltage	1200	—	—	V	V _{GE} =0V, I _c =1mA
V _{CE(ON)}	Collector-to-Emitter Voltage	1.7	1.8	2.3		V _{GE} =15V, I _c =400A
		—	2.7	—		V _{GE} =15V, I _c =400A, T _J =125°C
V _{GE(th)}	Gate Threshold Voltage	4.5	6.2	7.0		I _c =5mA
DV _{GE(th)DTJ}	Temperature Coeff. of Threshold Voltage	—	—	—	mV/°C	V _{CE} =V _{GE} , I _c =5mA
g _{fe}	Forward Transconductance	—	678	—	S	V _{CE} =25V, I _c =400A
I _{CES}	Collector - to - Emitter Leaking Current	—	—	1.0	mA	V _{GE} =0V, V _{CE} =1200V
		—	—	3		V _{GE} =0V, V _{CE} =1200V, T _J =125°C
V _{FM}	Diode Forward Voltage - Maximum	1.7	1.9	2.3	V	I _F =400A, V _{GE} =0V
		—	1.9	—		I _F =400A, V _{GE} =0V, T _J =125°C
I _{GES}	Gate - to - Emitter Leakage Current	—	—	1000	nA	V _{GE} =±20V

Dynamic Characteristics - T_J=125°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
Q _g	Total gate charge (turn - on)	—	4200	—	nC	V _{CC} = 400V V _{GE} =15V
Q _{ge}	Gate - Emitter charge (turn - on)	—	640	—		c=498A
Q _{gc}	Gate - Collector charge (turn - on)	—	1320	—		T _J =25°C
T _{d(on)}	Turn - On Delay Time	—	135	—	nS	R _G =3.3Ω
t _r	Rise Time	—	65	—		I _c = 400A
T _{d(off)}	Turn - Off Delay Time	—	490	—		V _{CC} = 600V
t _f	Fall Time	—	90	—		V _{GE} =±15V
E _{on}	Turn - On Switching Energy	—	48	—	mJ	Lσ=60nH
E _{off(1)}	Total Switching Energy	—	44	—		inductive load
E _{ts(1)}	Turn - On Switching Energy	—	92	—		
C _{ies}	Input Capacitance	—	16	—	nF	V _{GE} = 0V
C _{oes}	Output Capacitance	—	2.6	—		V _{CC} = 30V
C _{res}	Reverse Transfer Capacitance	—	1.68	—		f=1MHZ
t _{rr}	Diode Reverse Recovery Time	—	400	—	nS	I _c = 400A
I _{rr}	Diode Peak Reverse Current	—	160	—	A	L σ=50nH
Q _{rr}	Diode Recovery Charge	—	54	—	μC	
di(rec)M/dt	Diode Peak Rate of Fall of Recovery During t _b	—	2489	—	A/μs	V _{CC} =600V, di/dt=1600A/μs Inductive Load
T _{sc}	Short circuit withstand time	10	—	—	μs	V _{CC} =720V, V _{GE} =±15V Min. R _{G1} =15Ω, V _{CEP} =1100V

Case Outline



Dimensions are shown in millimeters

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