DACO SEMICONDUCTOR CO., LTD.

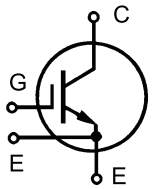
DAZF150G120XCA

IGBT Module 1200V / 150A

Preliminary

Features

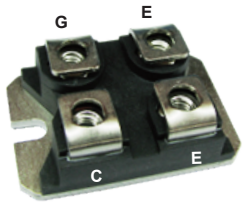
- Fast Switching Trench / Field Stop IGBT Technology
- Low Switching Losses
- High Short Circuit Capability



Applications

- Welder / Power Supply
- UPS / Inverter
- Industrial Motor Drive

SOT-227

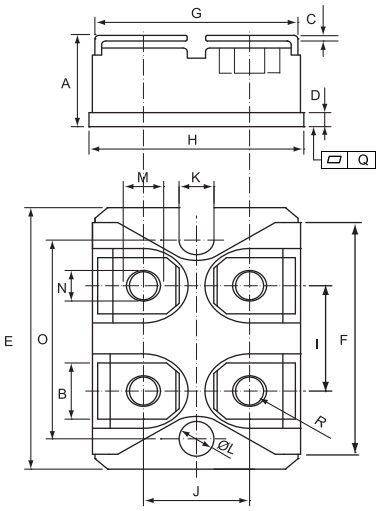


G = Gate, C = Collector, E = Emitter

Maximum Ratings (T_C= 25℃)

Item		Symbol	Rated Value	Unit
Collector-Emitter Voltage		V_{CES}	1200	V
Gate-Emitter Voltage		V_{GES}	±20	V
DC-Collector Current	T_C = 80℃	$I_{C,nom.}$	150	A
Repetitive Peak Collector Current	tp =1ms	I_{CRM}	300	A
Total Power Dissipation		P_{tot}	890	W
Isolation Voltage (A.C. 1 minute) between All Terminals and Baseplate		V_{iso}	2500	V
Junction Temperature Range		T_J	−40～+150	℃
Storage Temperature Range		T_{stg}	−40～+125	℃
Mounting Torque (M4 screw)	To heatsink To terminals	M_d	1.3 1.1	N.m

Dimensions in inches and (millimeters)



DIMENSIONS				
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.460	0.483	11.68	12.28
B	0.307	0.323	7.80	8.20
C	0.030	0.033	0.75	0.85
D	0.071	0.081	1.80	2.05
E	1.488	1.504	37.80	38.20
F	1.248	1.260	31.70	32.00
G	0.917	0.957	23.30	24.30
H	0.996	1.008	25.30	25.60
I	0.579	0.602	14.70	15.30
J	0.492	0.516	12.50	13.10
K	0.161	0.169	4.10	4.30
L	0.161	0.169	4.10	4.30
M	0.181	0.197	4.60	5.00
N	0.165	0.181	4.20	4.60
O	1.181	1.197	30.00	30.40
Q	-0.002	0.004	-0.05	0.10
R	M4*8			

■ Electrical Characteristics (T_{VJ} = 25℃)

Characteristic		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Emitter Cut-Off Current		I_{CES}	V_{CE}=1200V V_{GE}=0V	-	10	500	μA
Gate-Emitter Leakage Current		I_{GES}	V_{GE}=20V V_{CE}=0V	-	-	400	nA
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=150A ,V_{GE}=15V	-	1.9	2.2	V
Gate-Emitter Threshold Voltage		$V_{GE(th)}$	V_{CE}=V_{GE}, I_C=4mA	4.5	5.5	6.5	V
Input Capacitance		C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1MHz	-	20	-	nF
Output Capacitance		C_{oes}	V_{CE}=25V, V_{GE}=0V, f=1MHz	-	0.37	-	nF
Reverse Transfer Capacitance		C_{res}	V_{CE}=25V, V_{GE}=0V, f=1MHz	-	0.27	-	nF
Switching Time	Rise Time	t_r	V_{CC}=600V I_C=150A R_G=1Ω V_{GE}=±15V	-	0.050	-	μs
	Turn-On Time	$t_{d,on}$		-	0.180	-	
	Fall Time	t_f		-	0.096	-	
	Turn-Off Time	$t_{d,off}$		-	0.302	-	
Turn-on Energy Loss Per Pulse		E_{on}	I_C=150A , V_{CC}=600V V_{GE}=15V , R_G=1Ω Inductive load	-	1.02	-	mJ
Turn-off Energy Loss Per Pulse		E_{off}		-	10.9	-	mJ
External Gate Resistance		R_G	Per Switch	1	-	10	Ω

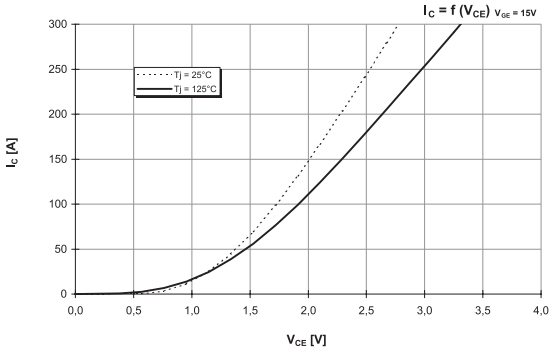
■ Thermal Characteristics (T_C= 25℃)

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Thermal Impedance	$R_{th(j-c)}$	Junction to Case	-	-	0.14	℃/W

Typical Characteristics

Preliminary Data

Fig.1 Output characteristic (Typical)



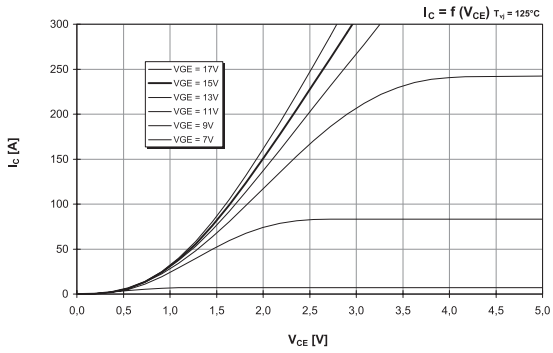


Fig.2 Transfer characteristic (Typical)

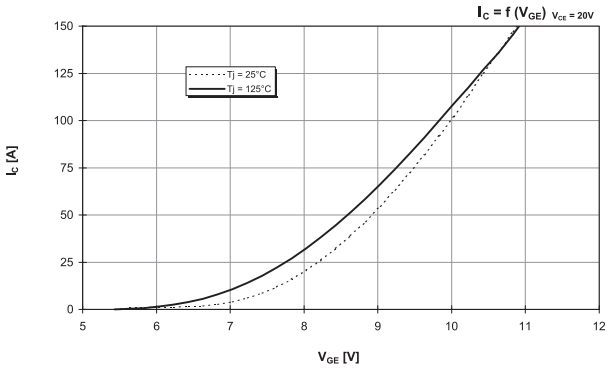


Fig.3 Reverse bias safe operation area (RBSOA)

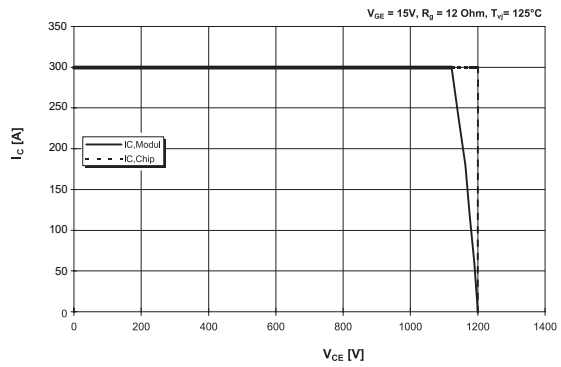
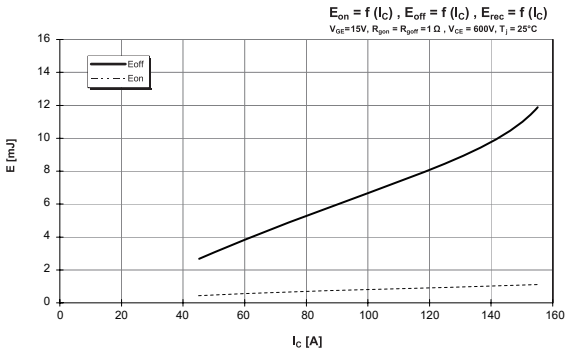


Fig.4 Switching losses (Typical)



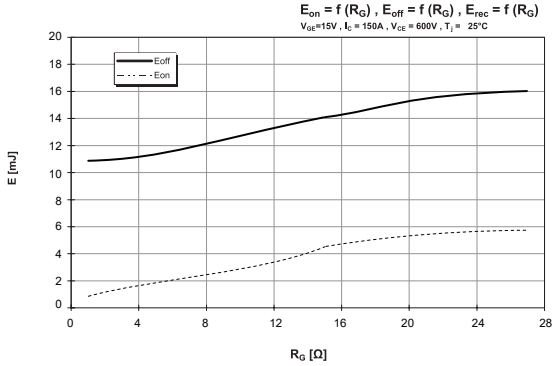
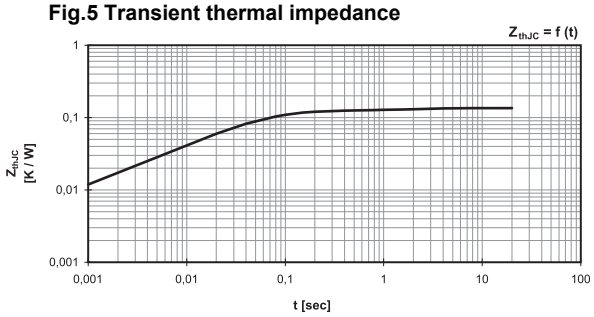


Fig.5 Transient thermal impedance



Disclaimer

DACO Semiconductor reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein.

DACO Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does DACO Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.

Purchasers is responsible for its products and applications using DACO Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by DACO Semiconductor. “Typical” parameters which may be provided in DACO Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including “Typicals” must be validated for each customer application by customer’s technical experts.

DACO Semiconductor products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of DACO Semiconductor’s product can reasonably be expected to result in personal injury, death or severe property or environmental damage. DACO Semiconductor accept no liability for inclusion and/or use of DACO Semiconductor’s products in such equipment or applications and therefore such inclusion and/or use is at the customer’s own risk.

Purchasers buy or use DACO Semiconductor products for any such unintended or unauthorized application, Purchasers shall indemnify and hold DACO Semiconductor and its suppliers and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that DACO Semiconductor was negligent regarding the design or manufacture of the part.