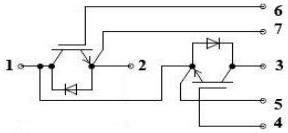
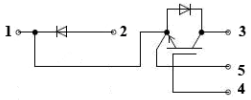
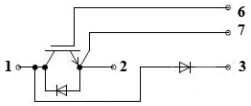
Name: AnM100HBA12M, AnM100LCA12M, AnM100RCA12M

Features:

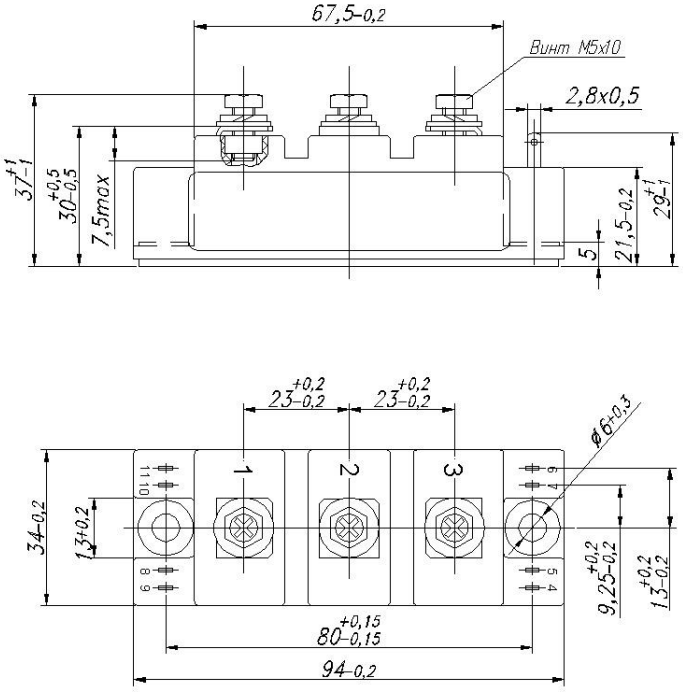
- Native Components
- Structure NPT+
- Low $V_{CE(sat)}$
- High short circuit capability
- Easy paralleling
- Positive temperature coefficient of $V_{CE(sat)}$
- Low C_{ies}, C_{oes}, C_{res}
- 100% control of the effect of double current
- Insulated base plate for heat dissipation
- Self-restraint on the short-circuit currents

Applications:

- AC Motor Control
- Motion/Servo Control
- UPS
- Welding Power Supplies

HB	
RC	
LC	

Type	V_{CE}	I_C	Package	Packaging
AnM100HBA12M AnM100LCA12M AnM100RCA12M	1200 V	100 A	A – 34 mm	Box



Proezd № 4806, Bld 4/3, Zelenograd, Moscow, Russia, 124460
Tel: +7(499)720-8383; +7(499)720-8342; Fax: +7(499)731-3270
E-mail: export@angstrem.ru , market@angstrem.ru ; Web: www.angstrem.ru

T a b l e 1 – Absolute Maximum Rated Values

	Parameter		Units
IGBT			
V_{CES}	Collector-to-Emitter Voltage	1200	V
V_{GES}	Gate-to-Emitter Voltage	±20	V
I_C, T_C=25 ºC	Collector Current	130	A
I_{CM}, T_C=25 ºC	Pulsed Collector Current	260	
I_C, T_C=80 ºC	Collector Current	100	
I_{CM}, T_C=80 ºC	Pulsed Collector Current	200	
P_D, T_C=25 ºC	Maximum Dissipation	540	W
Inverse diode			
I_F, T_C=25 ºC	Forward Current	100	A
I_{FM}, T_C=25 ºC	Pulsed Forward Current	200	
I_F, T_C=80 ºC	Forward Current	75	
I_{FM}, T_C=80 ºC	Pulsed Emitter Current	150	
Free-wheeling diode			
I_F, T_C=25 ºC	Forward Current	100	A
I_{FM}, T_C=25 ºC	Pulsed Forward Current	200	
I_F, T_C=80 ºC	Forward Current	75	
I_{FM}, T_C=80 ºC	Pulsed Emitter Current	150	
T_j	Operating Temperature	–55 to +150	ºC
T_{stg}	Storage Temperature	–55 to +125	
	Mounting Torque, M5	2.5 to 5.0	N * m
	Weight	200	g
V_{is}	Insulation Test Voltage (*t*=1 min.)	2500	Vrms

T a b l e 2 – Thermal Resistance

Symbol	Parameter	Min	Max	Units	Test Conditions
R_{thJC}	Thermal Resistance, Junction-to-Case	–	0.23	ºC/W	Per IGBT
R_{thJCD}	Thermal Resistance, Junction-to-Case	–	0.48		Per FWD

T a b l e 3 – Electrical Characteristics @ T_J=25ºC (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IGBT						
$V_{CE(sat)}$	Collector-to-Emitter Saturation Voltage	–	2.2	3.0	V	V_{GE}=15 V, I_C=100 A
		–	2.4	3.5		V_{GE}=15 V, I_C=100 A, T_j=125 ºC
$V_{GE(th)}$	Gate Threshold Voltage	4.0	5.0	7.0	V	V_{GE}=V_{GES}, I_C=1.0 mA
I_{CES}	Zero Gate Voltage Collector Current	–	0.01	0.5	mA	V_{CE}=1200 V, V_{GE}=0 V
		–	0.5	2.0		V_{CE}=1200 V, V_{GE}=0 V, T_j=125 ºC
$I_{GES(F)}$	Gate-to-Source Leakage Forward	–	10	100	nA	V_{GE}=20 V
		–	20	150		V_{GE}=20 V, T_j=125 ºC
$I_{GES(R)}$	Gate-to-Source Leakage Reverse	–100	–10	–		V_{GE}=–20 V
		–150	–20	–		V_{GE}=–20 V, T_j=125 ºC
C_{ies}	Input Capacitance	–	10.5	–	nF	V_{GE}=0 V, V_{CE}=25 V, f=1 MHz
C_{oes}	Output Capacitance	–	0.5	–		
C_{res}	Reverse Transfer Capacitance	–	0.2	–		
Q_G	Total Gate Charge	–	640	–	nC	V_{CC}=600 V, I_C=100 A, V_{GE}=15 V, R_G=10 Ω
Q_{GE}	Gate-Emitter Charge	–	65	–		
Q_{GC}	Gate-Collector Charge	–	260	–		
$t_{d(On)}$	Turn-On Delay Time	–	150	–	ns	V_{CC}=600 V, I_C=100 A, V_{GE}=±15 V, R_G=10 Ω, T_j=125 ºC, Inductive Load
t_r	Rise Time	–	150	–		
$t_{d(Off)}$	Turn-Off Delay Time	–	350	–		
t_f	Fall Time	–	150	–		
E_{on}	Turn-On Energy	–	14	–	mJ	V_{CC}=600 V, I_C=100 A, V_{GE}=±15 V, R_G=10 Ω, T_j=125 ºC, Inductive Load
E_{off}	Turn-Off Energy	–	10	–		
E_{tot}	Total Energy	–	24	–		
I_{SC}	Short circuit collector current	–	400	–	A	t_p≤10 µsec, V_{GE}≤15 V, R_G=10 Ω, T_j=125 ºC, V_{CC}=800 V, V_{CEmax}=V_{CES}-L_{sCE}*di/dt

Inverse and Free-Wheeling Diode

V_F	Forward Voltage	–	1.8	2.5	V	I_F=100 A, V_{GE}=0 V
I_{rrm}	Maximum Reverse Recovery Current	–	45	–	A	I_F=100 A, di_F/dt=0.5 A/ns, V_{GE}=0 V, T_j=25 °C
t_{rr}	Diode Reverse Recovery Time	–	200	300	ns	
Q_{rr}	Diode Reverse Recovery Charge	–	5.9	–	µC	

Precious metal content into 1000 pieces:

Gold _____ g;
Silver _____g.

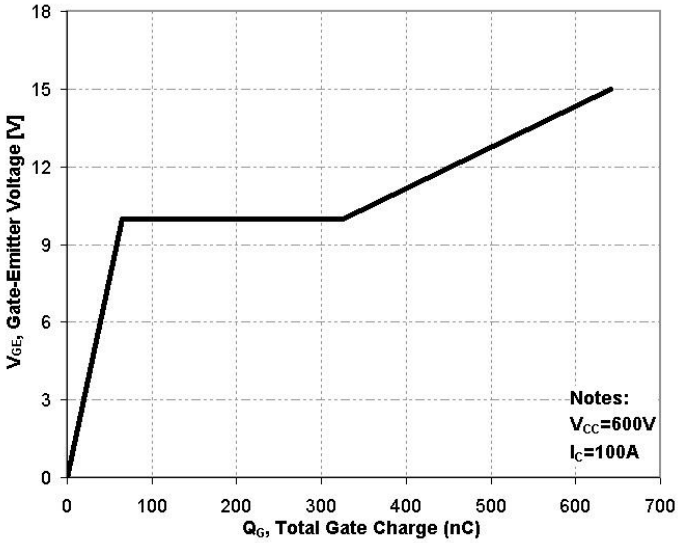


Fig. 1 – Total Gate Charge

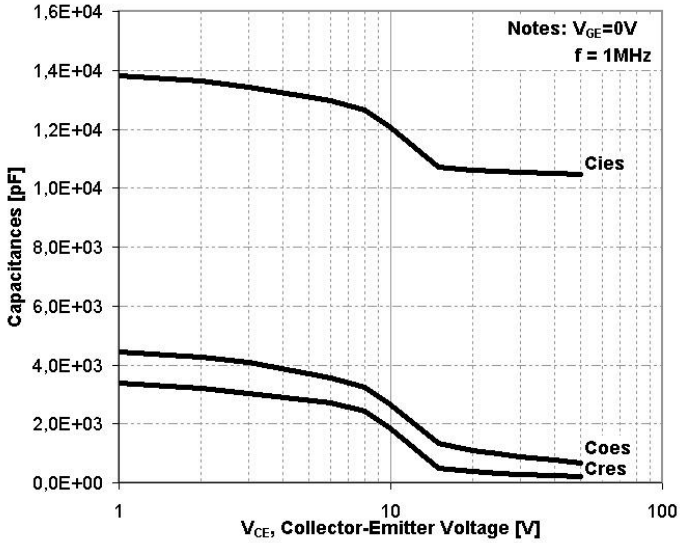


Fig. 2 – Typical Capacitance Characteristics

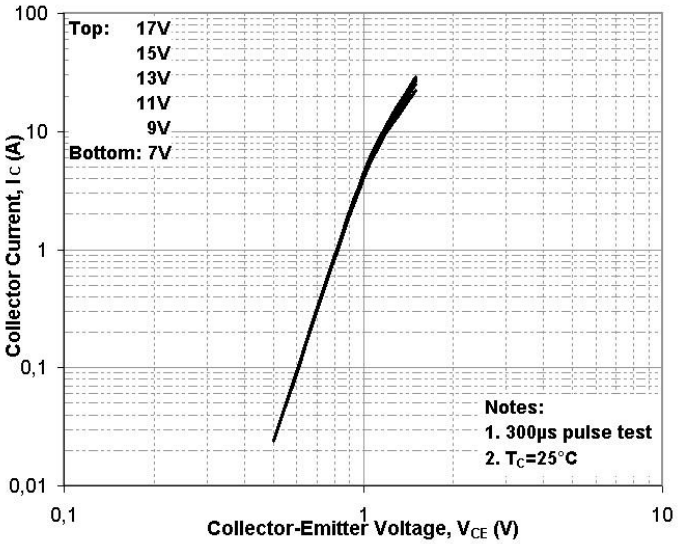


Fig. 3 – Typical Output Characteristics

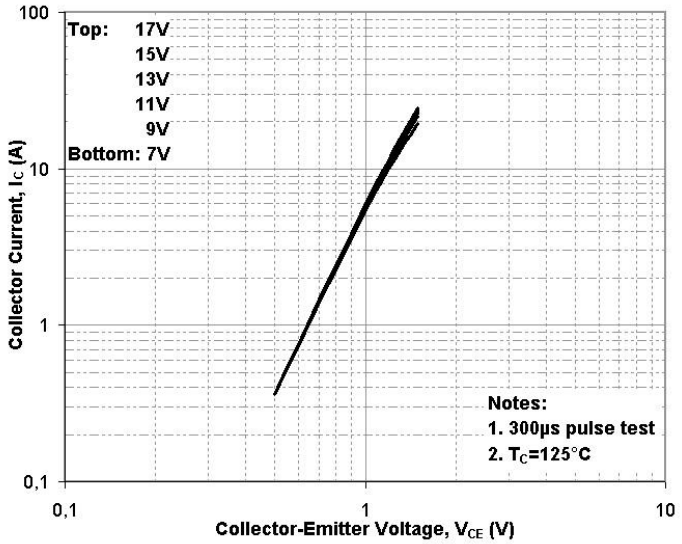


Fig. 4 – Typical Output Characteristics, T_C=125°C

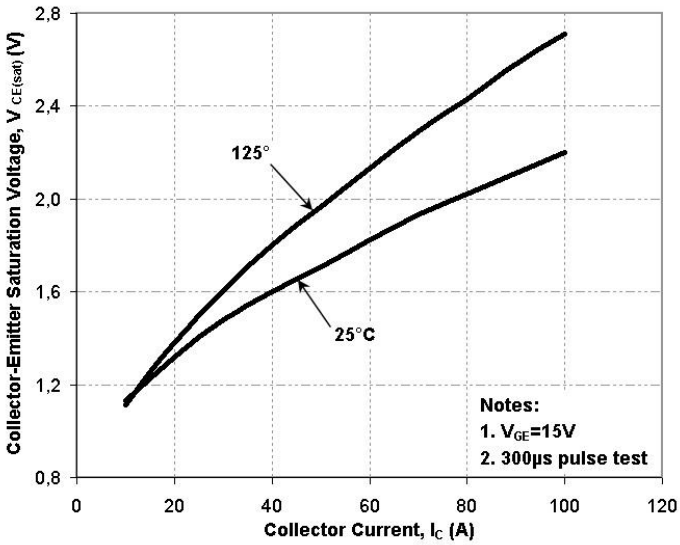


Fig 5. – Typical $V_{CE(sat)}$ Characteristics

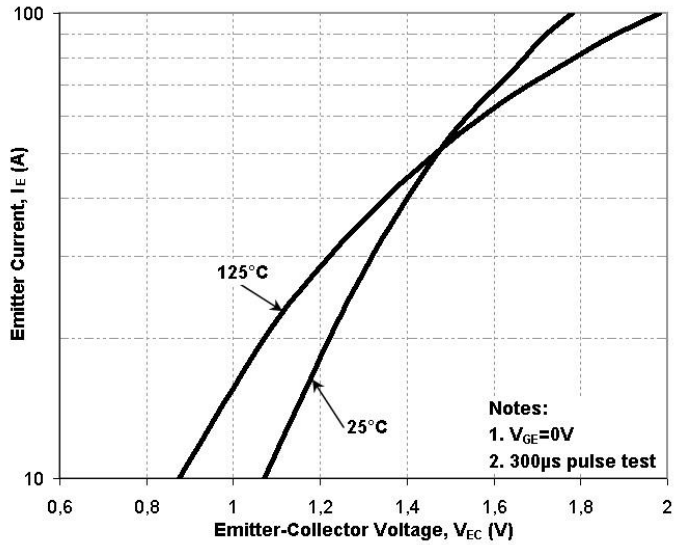


Fig.6 – Typical Forward Characteristics

Table 4. Revision history

Date	Revision	Changes
21-May-2014	1	Complete version. Preliminary.
15-Aug-2014	2	Add Fig.1 Total Gate Charge
18-Sep-2014	3	Add Table 4. Revision history. Add Fig.2÷6. Corrected Table 3 Gate Charge.
30-Sep-2016	4	Correct contacts. Add topology left and right chopper.