



Name: AnM75HBA12M, AnM75LCA12M, AnM75RCA12M

Features:

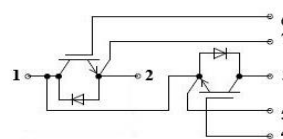
- Native Components
- Structure NPT+
- Low $V_{CE(sat)}$
- High short circuit capability
- Easy paralleling
- Positive temperature coefficient of $V_{CE(sat)}$
- Low C_{ies} , C_{oes} , C_{res}
- 100% control of the effect of double current
- Insulated base plate for heat dissipation
- Self-restraint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

Applications:

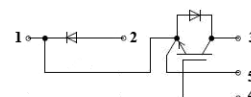
- AC Motor Control
- Motion/Servo Control
- UPS
- Welding Power Supplies



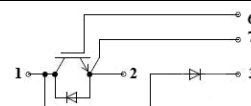
HB



RC



LC



Type	V_{CE}	I_c	Package	Packaging
AnM75HBA12M	1200 V	75 A	A – 34 mm	Box
AnM75LCA12M				
AnM75RCA12M				

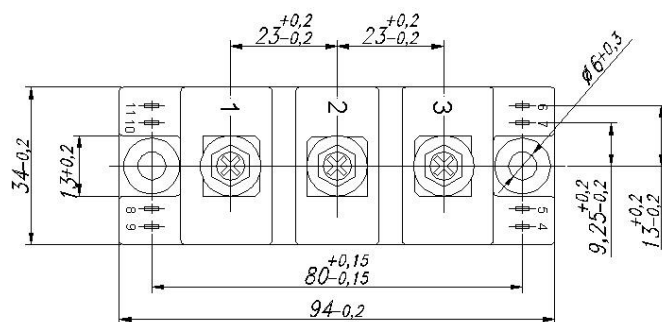
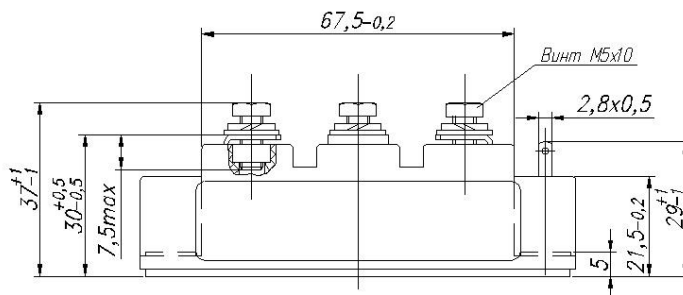




Table 1 – Absolute Maximum Rated Values

	Parameter		Units
IGBT			
V_{CES}	Collector-to-Emitter Voltage	1200	V
V_{GES}	Gate-to-Emitter Voltage	± 20	V
$I_C, T_C=25^\circ\text{C}$	Collector Current	95	A
$I_{CM}, T_C=25^\circ\text{C}$	Pulsed Collector Current	190	
$I_C, T_C=80^\circ\text{C}$	Collector Current	75	
$I_{CM}, T_C=80^\circ\text{C}$	Pulsed Collector Current	150	
$P_D, T_C=25^\circ\text{C}$	Total Maximum Dissipation	410	W

Inverse diode

$I_F, T_C=25^\circ\text{C}$	Forward Current	75	A
$I_{FM}, T_C=25^\circ\text{C}$	Pulsed Forward Current	150	
$I_F, T_C=80^\circ\text{C}$	Forward Current	55	
$I_{FM}, T_C=80^\circ\text{C}$	Pulsed Emitter Current	110	

Free-wheeling diode

$I_F, T_C=25^\circ\text{C}$	Forward Current	75	A
$I_{FM}, T_C=25^\circ\text{C}$	Pulsed Forward Current	150	
$I_F, T_C=80^\circ\text{C}$	Forward Current	55	
$I_{FM}, T_C=80^\circ\text{C}$	Pulsed Emitter Current	110	
T_j	Operating Temperature	-55 to +150	$^\circ\text{C}$
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 ($t = 1 \text{ min.}$)	2500	Vrms

Table 2 – Thermal Resistance

Symbol	Parameter	Min	Max	Units	Test Conditions
R_{thJC}	Thermal Resistance, Junction-to-Case	–	0.3	$^\circ\text{C/W}$	Per IGBT
R_{thJCD}	Thermal Resistance, Junction-to-Case	–	0.64		Per Diode

Table 3 – Electrical Characteristics @ $T_J=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IGBT						
$V_{CE(sat)}$	Collector-to-Emitter Saturation Voltage	–	2.2	2.8	V	$V_{GE}=15\text{ V}$, $I_C=75\text{ A}^{(3)}$
		–	2.5	3.3		$V_{GE}=15\text{ V}$, $I_C=75\text{ A}^{(3)}$, $T_J=125^\circ\text{C}$
$V_{GE(th)}$	Gate Threshold Voltage	4.0	5.0	7.0	V	$V_{GE}=V_{GES}$, $I_C=5.0\text{ mA}$
I_{CES}	Zero Gate Voltage Collector Current	–	0.005	0.1	mA	$V_{CE}=1200\text{ V}$, $V_{GE}=0\text{ V}$
		–	0.5	2.0		$V_{CE}=1200\text{ V}$, $V_{GE}=0\text{ V}$, $T_J=125^\circ\text{C}$
$I_{GES(F)}$	Gate-to-Source Leakage Forward	–	10	100	nA	$V_{GE}=20\text{ V}$
		–	20	150		$V_{GE}=20\text{ V}$, $T_J=125^\circ\text{C}$
$I_{GES(R)}$	Gate-to-Source Leakage Reverse	–100	–10	–		$V_{GE}=-20\text{ V}$
		–150	–20	–		$V_{GE}=-20\text{ V}$, $T_J=125^\circ\text{C}$
C_{ies}	Input Capacitance	–	7.5	–	nF	$V_{GE}=0\text{ V}$, $V_{CE}=25\text{ V}$, $f=1\text{ MHz}$
C_{oes}	Output Capacitance	–	0.55	–		
C_{res}	Reverse Transfer Capacitance	–	0.26	–		
$t_{d(on)}$	Turn-On Delay Time	–	90	–	ns	$V_{CC}=600\text{ V}$, $I_C=75\text{ A}$, $V_{GE}=15\text{ V}$, $R_G=10\ \Omega$, $T_J=125^\circ\text{C}$, Inductive Load
t_r	Rise Time	–	150	–		
$t_{d(off)}$	Turn-Off Delay Time	–	450	–		
t_f	Fall Time	–	150	–		
Q_G	Total Gate Charge	–	250	–	nC	$V_{CC}=480\text{ V}$, $I_C=75\text{ A}$, $V_{GE}=15\text{ V}$, $R_G=10\ \Omega$
Q_{GE}	Gate-Emitter Charge	–	35	–		
Q_{GC}	Gate-Collector Charge	–	110	–		
E_{on}	Turn-On Energy	–	10	–	mJ	$V_{CC}=600\text{ V}$, $I_C=75\text{ A}$, $V_{GE}=15\text{ V}$, $R_G=10\ \Omega$, $T_J=125^\circ\text{C}$, Inductive Load
E_{off}	Turn-Off Energy	–	13	–		
E_{tot}	Total Energy	–	23	–		
I_{sc}	Short circuit collector current	–	300	–	A	$t_p \leq 10\ \mu\text{sec}$, $V_{GE} \leq 15\text{ V}$, $R_G=10\ \Omega$, $T_J=125^\circ\text{C}$, $V_{CC}=800\text{ V}$, $V_{CEmax}=V_{CES}-L_{sCE} \cdot di/dt$

**Inverse and Free-Wheeling Diode**

V_F	Forward Voltage	–	1.9	2.5	V	$I_F=75\text{ A}, V_{GE}=0\text{ V}$
I_{rrm}	Maximum Reverse Recovery Current	–	30	–	A	$I_F=75\text{ A},$ $di_F/dt=0.5\text{ A/ns},$ $V_{GE}=0\text{ V},$ $T_j=25\text{ °C}$
t_{rr}	Diode Reverse Recovery Time	–	180	300	ns	
Q_{rr}	Diode Reverse Recovery Charge	–	3.7	–	μC	

Precious metal content into 1000 pieces:

Gold _____ g;

Silver _____ g.

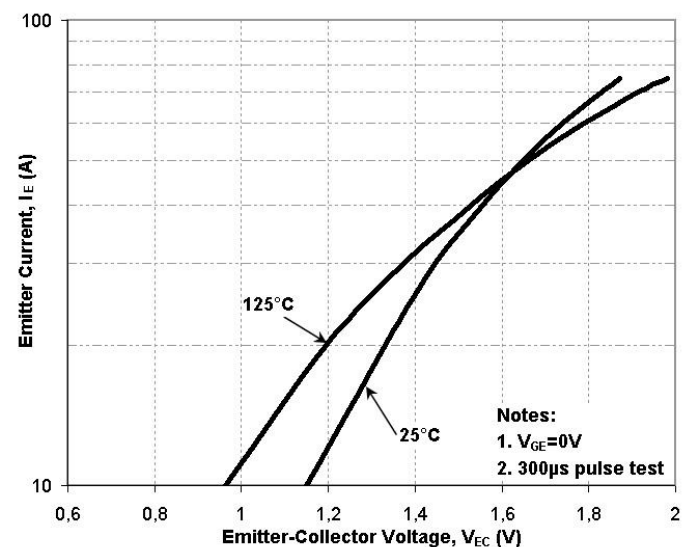
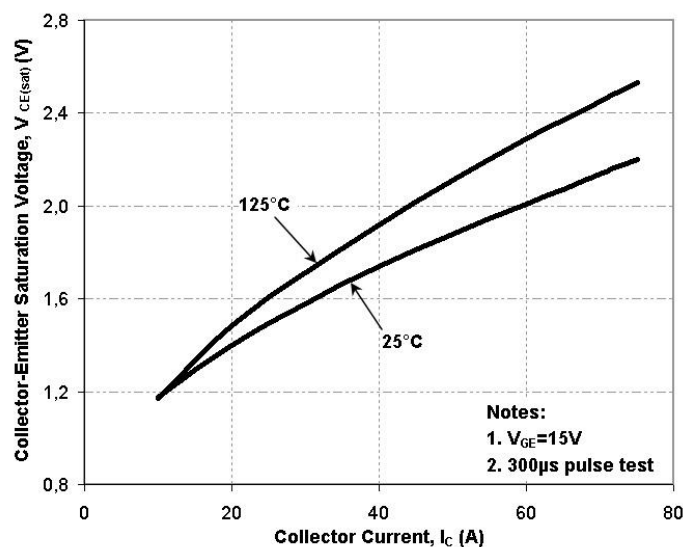
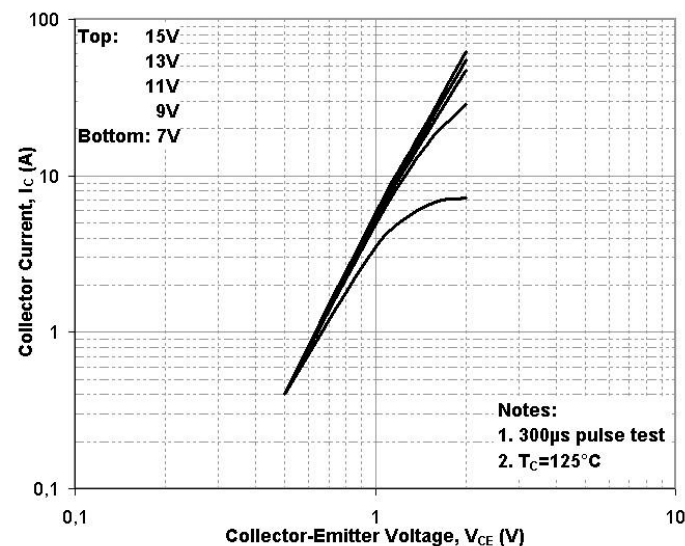
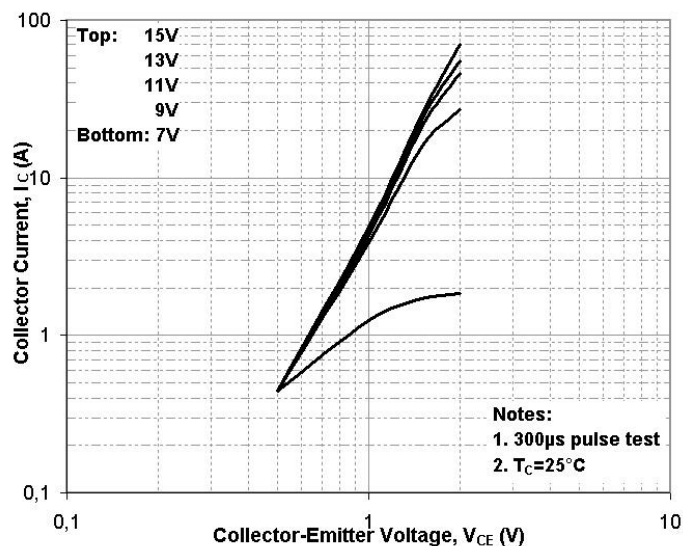
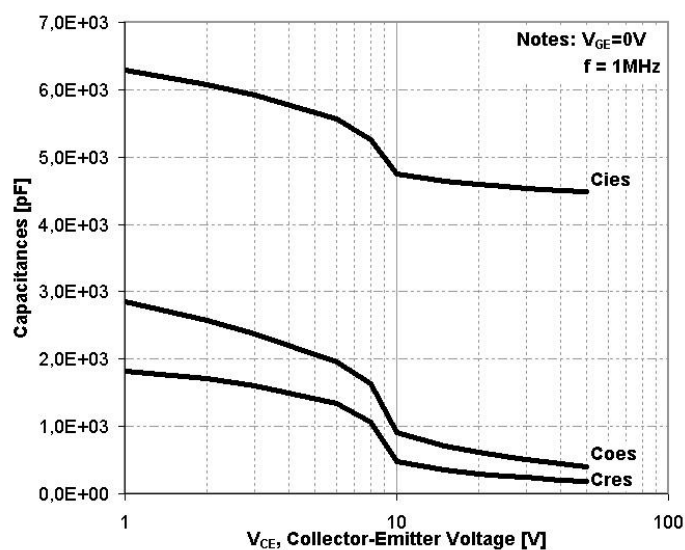
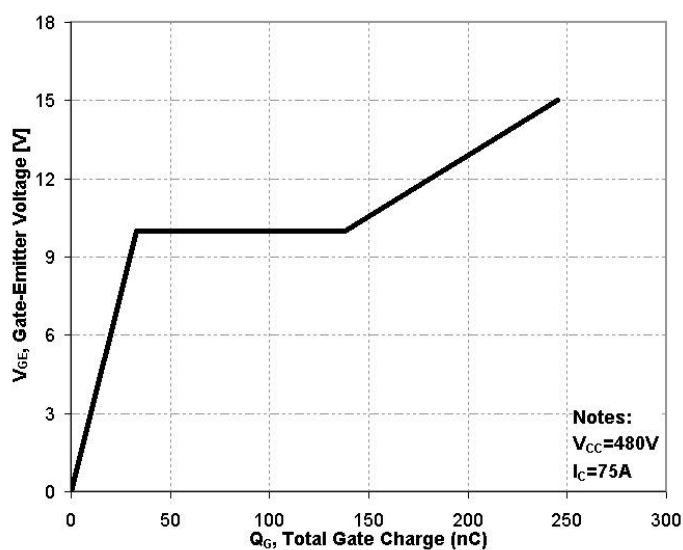


Table 4 – Revision history

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÷7. Corrected Table 3 Gate Charge.
30-Sep-2016	4	Correct contacts. Add topology left and right chopper.