General Description

BYD IGBT Power Module BG100B12L provides ultra low conduction loss as well as high short circuit capability, which introduce the advanced IGBT chip/FWD and improved connection, it is able to take on a perfect performance in various applications under 25KHz.

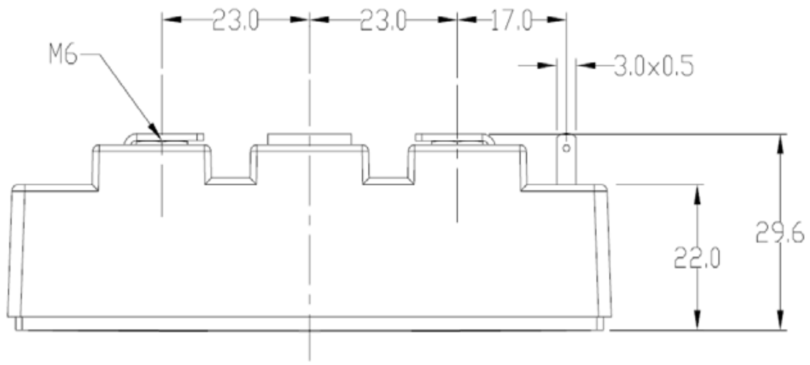
Features

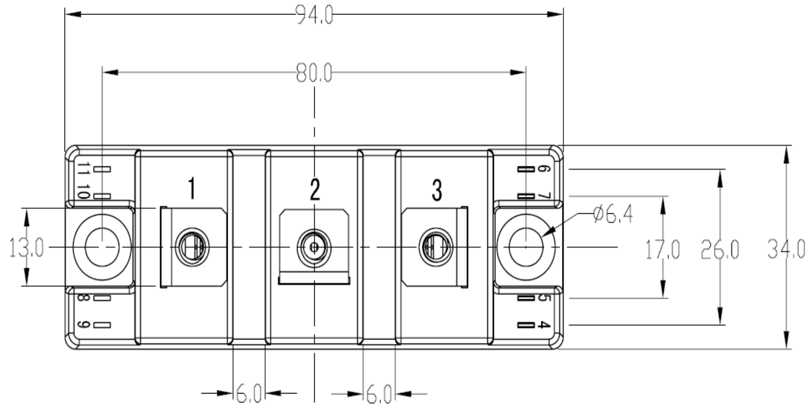
- Half-bridge
- Low inductance
- Standard package
- High short circuit capability
- Ultra low conduction and switching loss
- Including fast&soft recovery anti-parallel FWD

Applications

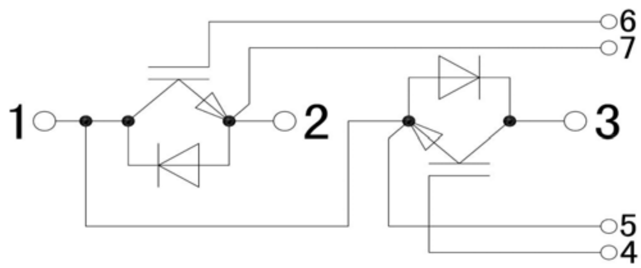
- AC motor control
- Inverters
- Servo
- UPS
- Electronic welding

Package Outlines
Dimensions in mm





Circuit Diagram



Characteristic values

Symbol	Conditions	Temperature	Value		Unit
Absolute Maximum Ratings					
			min	max	
V_{CES}	V_{GE}=0V	T_{vj}=25℃		1200	V
I_C		T_{vj}=80℃		100	A
I_{CM}	t=1ms	T_{vj}=80℃		200	A
V_{GES}			-20	20	V
t_{psc}	V_{CC}=900V,V_{CEM}≦1200V,V_{GE}≦15V	T_{vj}≦125℃		10	us
T_{vj}			-40	150	℃
T_{stg}			-40	125	℃
V_{RRM}				1200	V
I_F				100	A
V_{isol}	1min,f=50Hz			2500	V

Characteristics						
IGBT			min	typ	max	
$V_{GE(th)}$	Ic=4mA, V_{CE}=V_{GE}	T_{vj}=25℃	5	6.2	7	V
I_{CES}	V_{CE}=1200V, V_{GE}=0V	T_{vj}=25℃			0.1	mA
		T_{vj}=125℃		0.4		mA
$V_{CE(sat)}$	Ic=100A, V_{GE}=15V	T_{vj}=25℃		1.8		V
		T_{vj}=125℃		2		V
C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1MHz	T_{vj}=25℃		7.43		nF
C_{oes}				0.52		nF
C_{res}				0.34		nF
$t_{d(on)}$	V_{CC}=600V, Ic=100A, R_G=10Ω, V_{GE}=±15V, L_σ=60nH, inductive load	T_{vj}=25℃		125		ns
		T_{vj}=125℃		135		ns
t_r		T_{vj}=25℃		60		ns
		T_{vj}=125℃		60		ns
$t_{d(off)}$		T_{vj}=25℃		420		ns
		T_{vj}=125℃		490		ns
t_f		T_{vj}=25℃		60		ns
		T_{vj}=125℃		75		ns
E_{on}	V_{CC}=600V, Ic=100A, R_G=10Ω, V_{GE}=±15V, L_σ=60nH, inductive load	T_{vj}=25℃		8.6		mJ
		T_{vj}=125℃		12.4		mJ
E_{off}	V_{CC}=600V, Ic=100A, R_G=10Ω, V_{GE}=±15V, L_σ=60nH, inductive load	T_{vj}=25℃		6.8		mJ
		T_{vj}=125℃		10.8		mJ
Diode						
V_F	I_F=100A	T_{vj}=25℃			1.85	V
		T_{vj}=150℃			1.9	V
I_{RM}	I_F=100A, V_{cc}=600V, di/dt=1800A/us, L_σ=60nH, inductive load	T_{vj}=125℃		115		A
Q_{rr}		T_{vj}=125℃		27.2		uC
t_{rr}		T_{vj}=125℃		180		ns
E_{rec}		T_{vj}=125℃		11.5		mJ

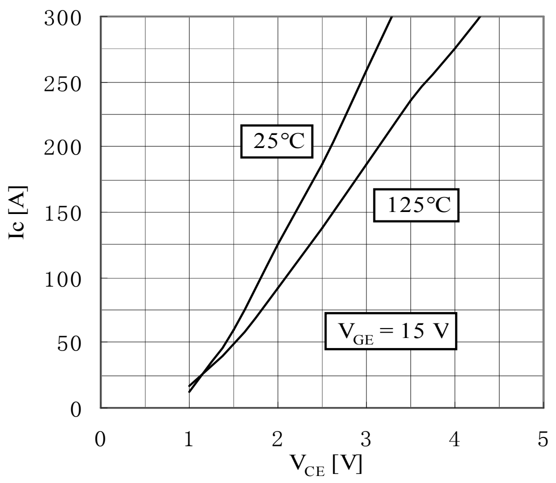


Fig.1 Typical Output Characteristics

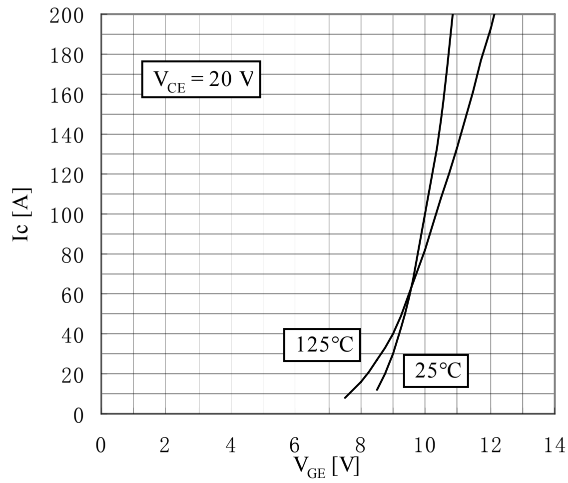


Fig.2 Typical Transfer Characteristics

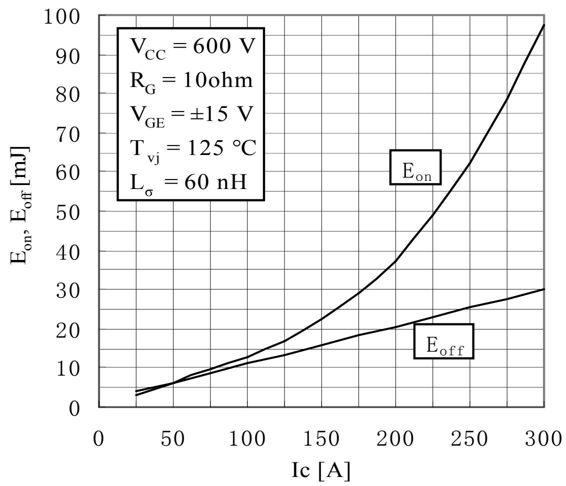


Fig.3 Switching Loss vs. Collector current

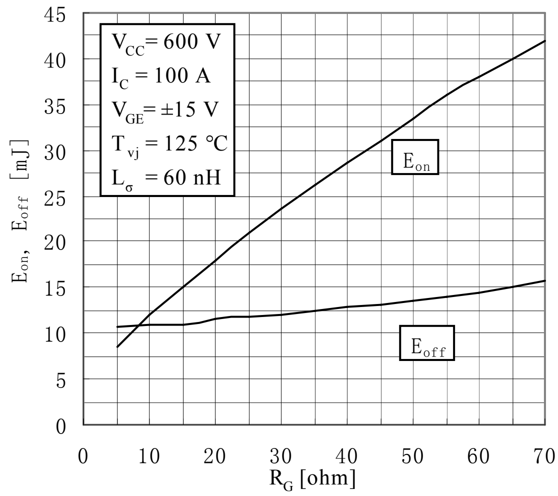


Fig.4 Switching Loss vs.Gate Resistor

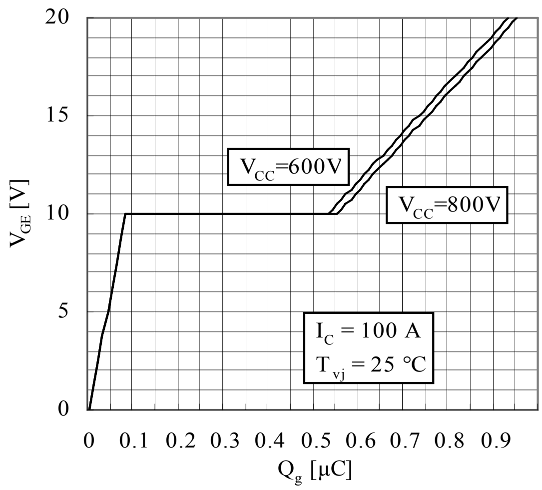


Fig.5 Typical Gate Charge Characteristics

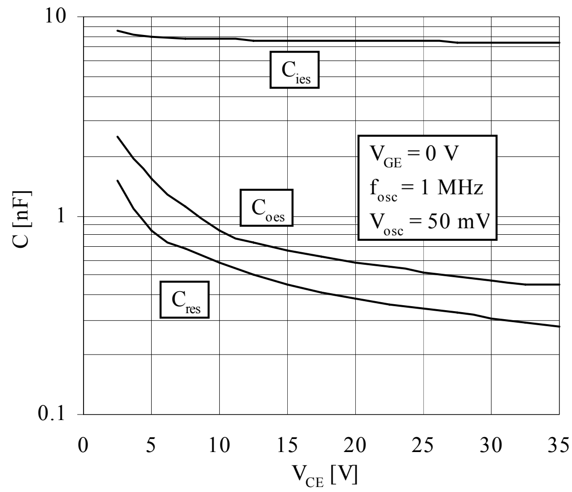


Fig.6 Typical Capacitances vs Collector-Emitter Voltage