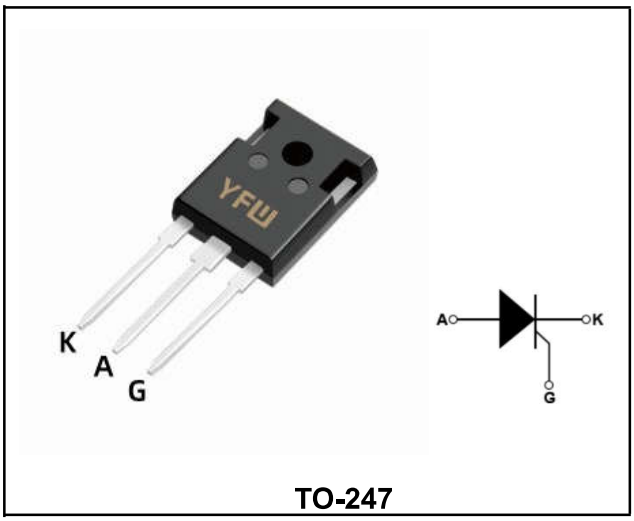
80A Silicon Control Rectifiers



Features

- Single side grooving technology with independent intellectual property rights, table glass passivation technology;
- Multi-layer metallized electrode;
- High blocking voltage and high temperature Stability

Applications

Vacuum cleaners, power tools and other motor speed controllers; Solid state relays; Heating controllers (temperature regulation); And other phase control circuits.

Absolute maximum ratings (T_{VJ}= 25℃ unless otherwise stated)

Symbol	Parameter and test conditions			value	Unit
$I_{T(AV)}$	On state average current Tc=115℃ T_{VJ}=150℃			80	A
$I_{T(RMS)}$	RMS on-state current (full sine wave) Tc=115℃			126	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_{VJ} initial = 25℃)	t=10ms f=50HZ	T_{VJ}=45℃ V_R=0	900	A
I^2t	I^2t value for fusing	t=10ms f=50HZ	T_{VJ}=45℃ V_R=0	4050	A^2S
$(di/dt)_{cr}$	Critical rate of rise of on-state current IG = 2 x IGT, tr ≤100 ns	T_{VJ}=150℃;f=50Hz		150	A/us
$V_{RRM/DRM}$	max. repetitive reverse/forward blocking voltage	T_{VJ}=25℃		1200	V
I_{GM}	Peak gate current	t_p=20us T_{VJ}=125℃		8	A
V_{RGM}	Peak reverse gate voltage			5	V
$P_{G(AV)}$	Average gate power dissipation	Tc=150℃		0.5	W
T_{stg} T_{VJ}	Storage junction temperature range Operating junction temperature range			−40to+150 −40to+125	℃

Dynamic electrical characteristics (T_{VJ}=25℃, unless otherwise specified)

Symbol	Parameter and test conditions			value	Unit
I_{GT}	V_D=6V	25℃	MAX	60	mA
		-40℃		122	
V_{GT}		25℃	MAX	1.5	V
		-40℃		1.6	
V_{GD}	V_D=⅔ V_{DRM} T_{VJ} =150℃		MAX	0.2	V
I_{GD}				5	mA
I_H	V_D = 6V R_{GK} = ∞ T_{VJ} = 25℃		MAX	100	mA
I_L	t_p=10us I_G=0.3A; di_G/dt =0.3A/μs; T_{VJ} = 25℃		MAX	150	mA
t_{gd}	V_D=1/2 V_{DRM} T_{VJ} =25℃ I_G=0.3; di_G/dt=0.3A/us		MAX	2	us
t_q	V_R=100V; I_T=80A; V=2/3V_{DRM} T_{VJ}=125℃ di/dt=20A/us dv/dt=20V/us t_p=200us		Typ	150	us
$(dv/dt)_{cr}$	V=2/3V_{DRM} R_{GK} = ∞ T_{VJ}=150℃		MAX	1000	V/us

Static electrical characteristics

Symbol	Parameter and test conditions			value	Unit
V_{TM}	I_{TM}= 160A	T_{VJ}=25℃	MAX	1.77	V
V_{T0}	Threshold on-state voltage	T_{VJ}=150℃	MAX	0.88	V
Rd	Dynamic resistance	T_{VJ}=125℃	MAX	6.4	mΩ
$I_{R/D}$	$V_{R/D}$=1200V	T_{VJ}=25℃	MAX	50	uA
	$V_{R/D}$=1200V	T_{VJ}=125℃		5	mA
$R_{th(j-c)}$	Junction to ambient	BCB		0.6	℃/W

Typical Characteristic Curves

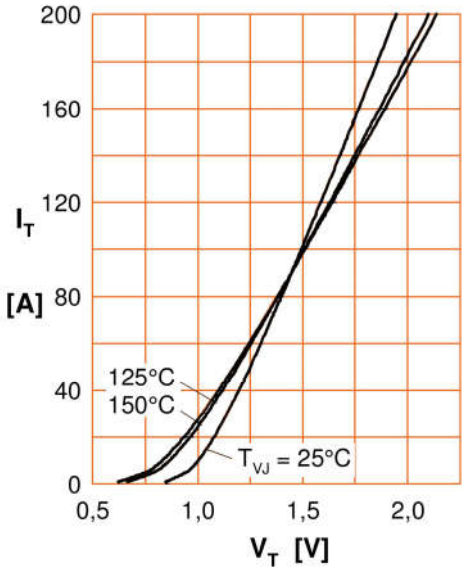


Fig. 1 Forward characteristics

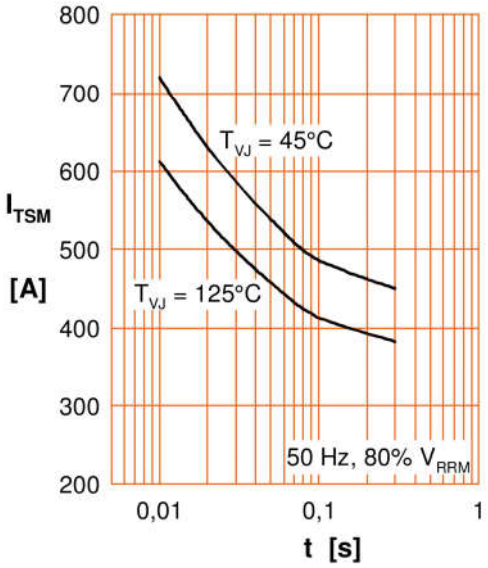


Fig. 2 Surge overload current

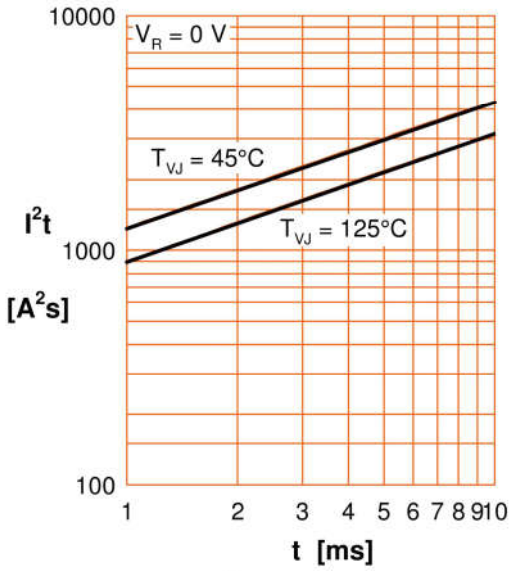


Fig. 3 I^2t versus time (1-10 ms)

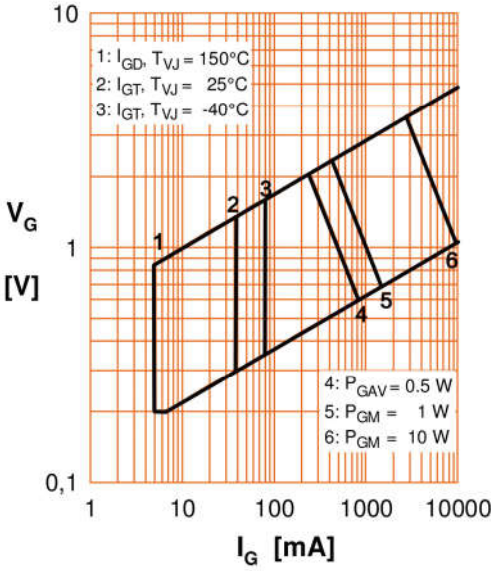


Fig. 4 Gate trigger characteristics

Typical Characteristic Curves

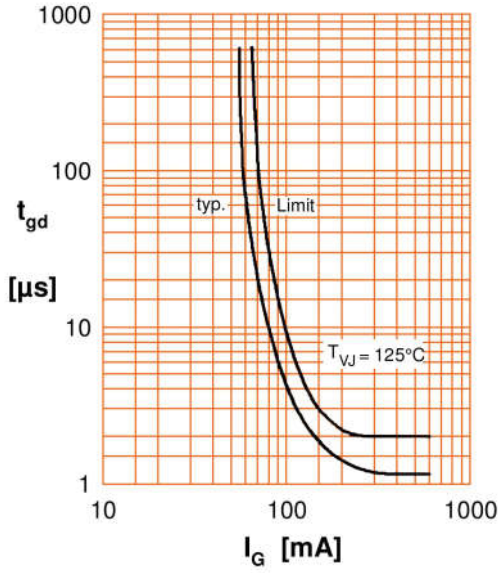


Fig. 5 Gate controlled delay time

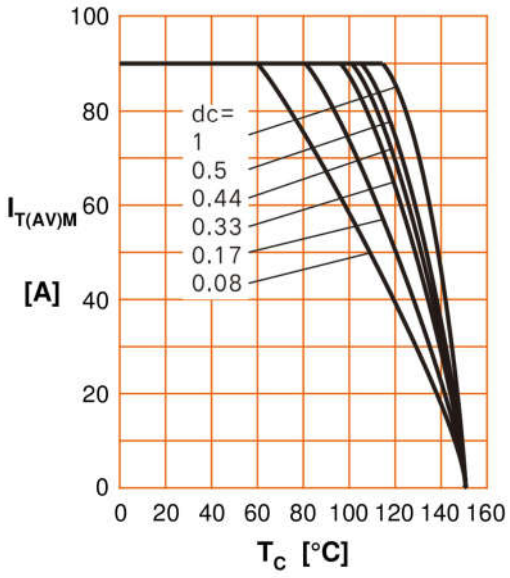


Fig. 6 Max. forward current at case temperature

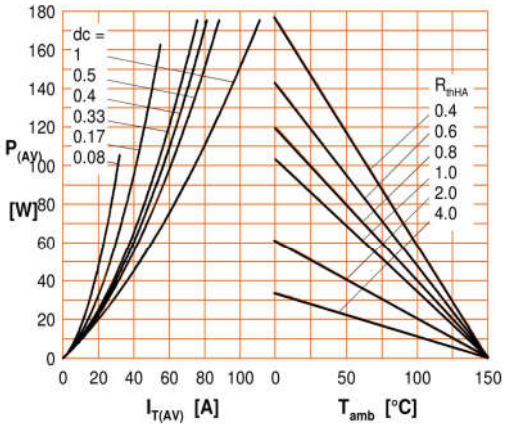


Fig. 7a Power dissipation versus direct output current
Fig. 7b and ambient temperature

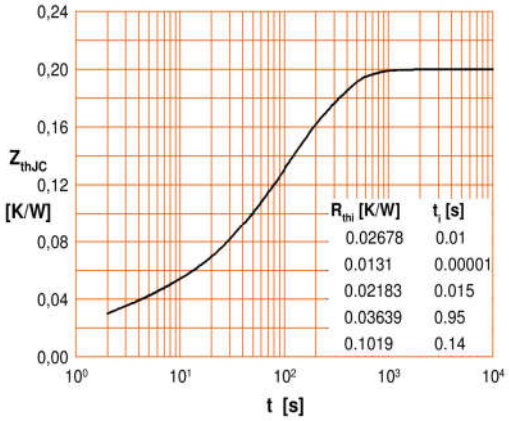
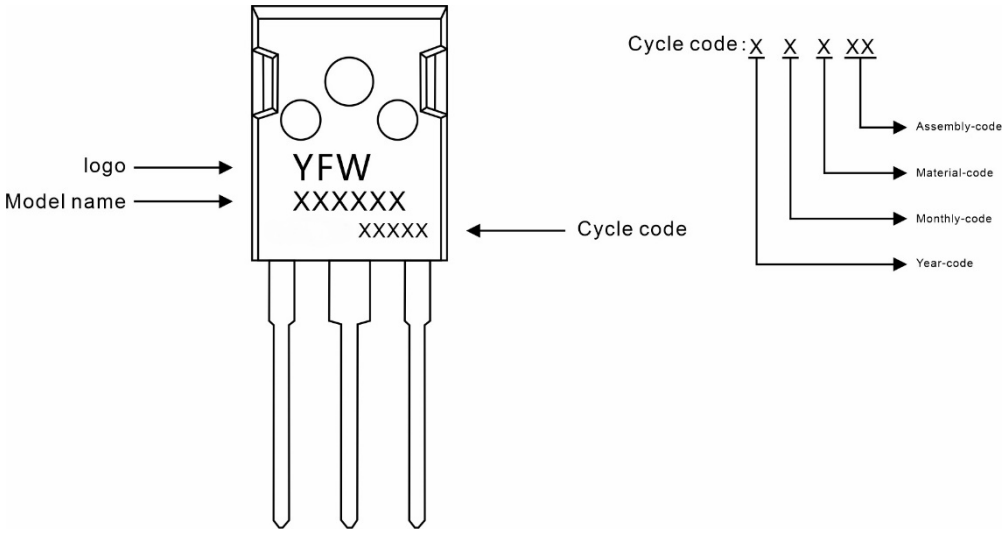


Fig. 8 Transient thermal impedance

Marking Diagram

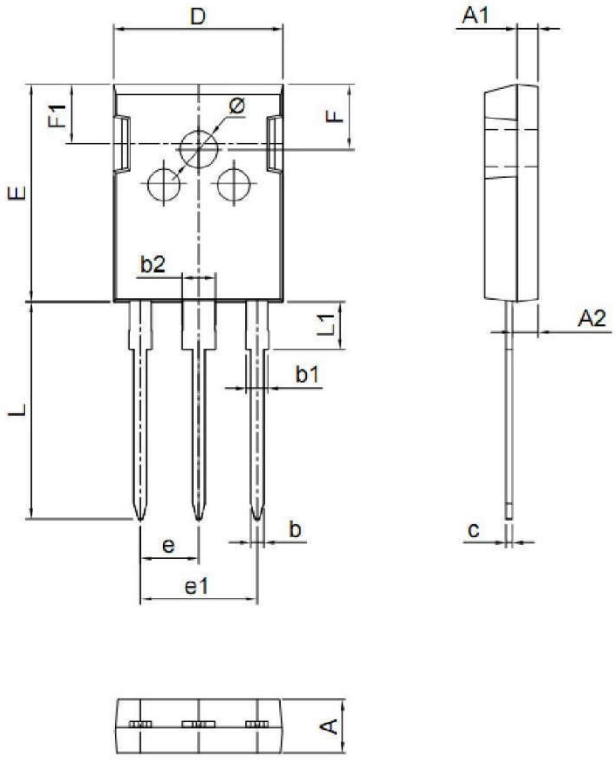


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BCB80A	TO-247	0.209oz(5.93g)	30pcs/tube	600PCS/Box 2400PCS/Carton

Package Dimensions

TO-247



Symbol	Dimensions in mm		Dimensions in Inch	
	Min.	Max.	Min.	Max.
A	4.90	5.10	0.193	0.201
A1	1.90	2.10	0.075	0.083
A2	2.29	2.54	0.090	0.100
b	1.00	1.40	0.039	0.055
b1	2.00	2.20	0.079	0.087
b2	3.00	3.20	0.118	0.126
c	0.50	0.70	0.020	0.028
D	15.75	16.05	0.620	0.632
E	20.20	20.80	0.795	0.819
e	5.45 (BSC)		0.215 (BSC)	
e1	10.90 (BSC)		0.429 (BSC)	
F	6.05	6.25	0.238	0.246
F1	5.80	6.00	0.228	0.236
L	20.10	20.40	0.791	0.803
L1	4.05	4.35	0.159	0.171
Φ	3.50	3.70	0.138	0.146

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