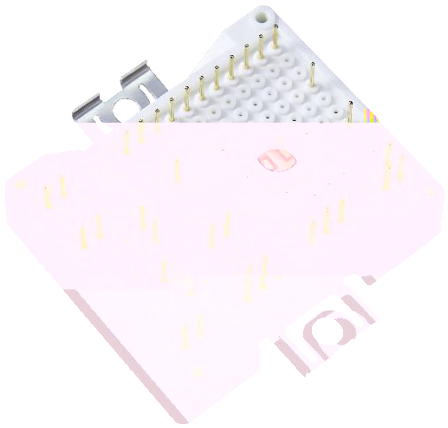
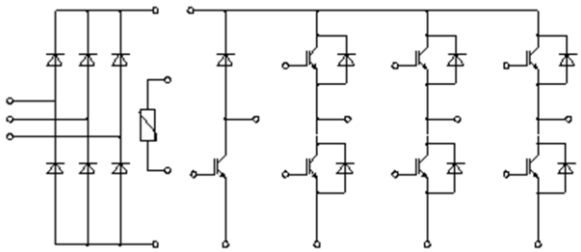
MG15P12P3



1200V
15A

Motor Drivers
AC and DC Servo Drive Amplifier
UPS (Uninterruptible Power Supplies)

Circuit



Low switching losses
Low $V_{CE(sat)}$ with positive temperature coefficient
Including fast & soft recovery anti-parallel FWD
Low inductance case
High short circuit capability(10us)
Isolated heatsink using DBC technology
Maximum junction temperature 175

●

Collector-Emitter Voltage	V_{CES}	V_{GE}=0V, I_C =1mA, T_{vj}=25	1200	V
Continuous Collector Current	I_C	T_C=100 T_{vjmax} 175	15	A
Repetitive Peak Collector Current	I_{CRM}	t_p=1ms	30	A
Gate-Emitter Voltage	V_{GES}	T_{vj}=25	20	V
Total Power Dissipation	P_{tot}	T_C=25 T_{vjmax}=175	165	W

●

Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$, I_C =0.5mA,T_{vj}=25	5.2	5.8	6.4	V
Collector-Emitter Cut-off Current	I_{CES}	V_{CE}=1200V,V_{GE}=0V, T_{vj}=25			1.0	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=15A,V_{GE}=15V, T_{vj}=25		1.90		V
		I_C=15A,V_{GE}=15V, T_{vj}=125		2.10		
		I_C=15A,V_{GE}=15V, T_{vj}=150		2.20		
Gate Charge	Q_G			0.15		uC
Input Capacitance	C_{ies}	V_{CE}=25V, V_{GE} =0V, f=1MHz, T_{vj}=25		0.98		nF
Reverse Transfer Capacitance	C_{res}			0.034		nF
Gate-Emitter leakage current	I_{GES}	V_{CE}=0V, V_{GE}=20V, T_{vj} = 25			400	nA
Turn-on Delay Time	$t_{d(on)}$	I_C=15A V_{CE}=600V V_{GE} =±15V R_G=39Ω T_{vj}=25		63		ns
Rise Time	t_r			31		ns
Turn-off Delay Time	$t_{d(off)}$			87		ns
[redacted]ll Time	t_f			305		ns
Energy Dissipation During Turn-on Time	E_{on}			2.03		mJ
Energy Dissipation During Turn-off Time	E_{off}			1.05		mJ
Turn-on Delay Time	$t_{d(on)}$	I_C=15A				

www.21yangjie.com

●

Repetitive Peak Reverse Voltage	V_{RRM}	T_{vj}=25	1200	V
Continuous DC Forward Current	I_F		15	A
Repetitive Peak Forward Current	I_{FRM}	t_p=1ms	30	A
I^2t-value	I^2t	V_R=0V,t_p=10ms,T_{vj}=125	16.0	A^2s
		V_R=0V,t_p=10ms,T_{vj}=150	14.0	

Forward Voltage	V_F	I_F=15A,T_{vj}=25		2.00		V
		I_F=15A,T_{vj}=125		1.80		
		I_F=15A,T_{vj}=150		1.75		
Recovered Charge	Q_{rr}	I_F=15A V_R=600V -di_F/dt=600A/us T_{vj}=25		0.48		uC
Peak Reverse Recovery Current	I_{rr}			13		A
Reverse Recovery Energy	E_{rec}			0.48		mJ
Recovered Charge	Q_{rr}	I_F=15A V_R=600V -di_F/dt=600A/us T_{vj}=150		0.62		uC
Peak Reverse Recovery Current	I_{rr}			14		A
Reverse Recovery Energy	E_{rec}			0.7		mJ

www.21yangjie.com

●

Collector-Emitter Voltage	V_{CES}	V_{GE}=0V, I_C =1mA, T_{vj}=25	1200	V
Continuous Collector Current	I_C	T_C=100 T_{vjmax} 175	15	A
Repetitive Peak Collector Current	I_{CRM}	t_p=1ms	30	A
Gate-Emitter Voltage	V_{GES}	T_{vj}=25	20	V
Total Power Dissipation	P_{tot}	T_C=25 , T_{vjmax}=175	165	W

●

Repetitive Peak Reverse Voltage	V_{RRM}	T_{vj}=25	1600	V
Average output Current 50/60Hz, sine wave	$I_{F(AV)}$	T_C=100	20	A
Maximum RMS Current at Rectifier Output	I_{RMSM}	T_C=100	40	A
Surge Forward Current	I_{FSM}	V_R=0V,t_p=10ms,T		

●

Isolation Voltage	V_{isol}	t=1min,f=50Hz	2500			V
Maximum Junction Temperature	T_{jmax}					

www.21yangjie.com

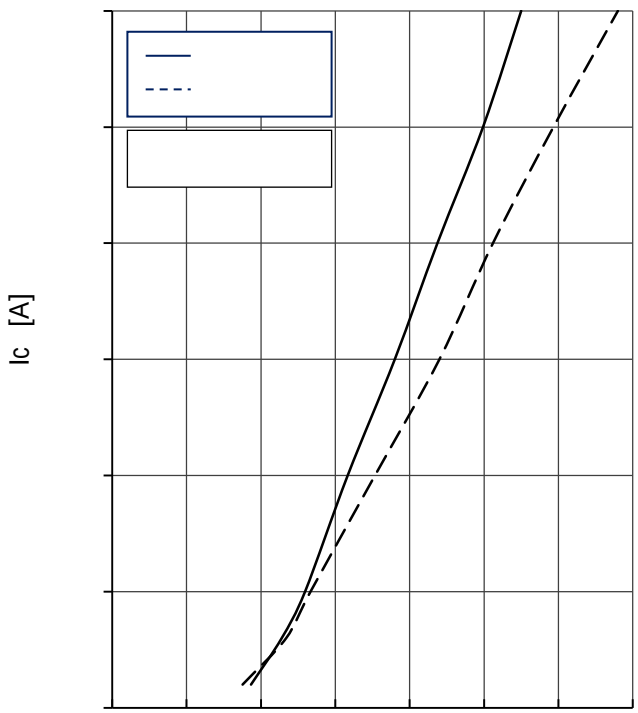


Fig1.IGBT Output Characteristics

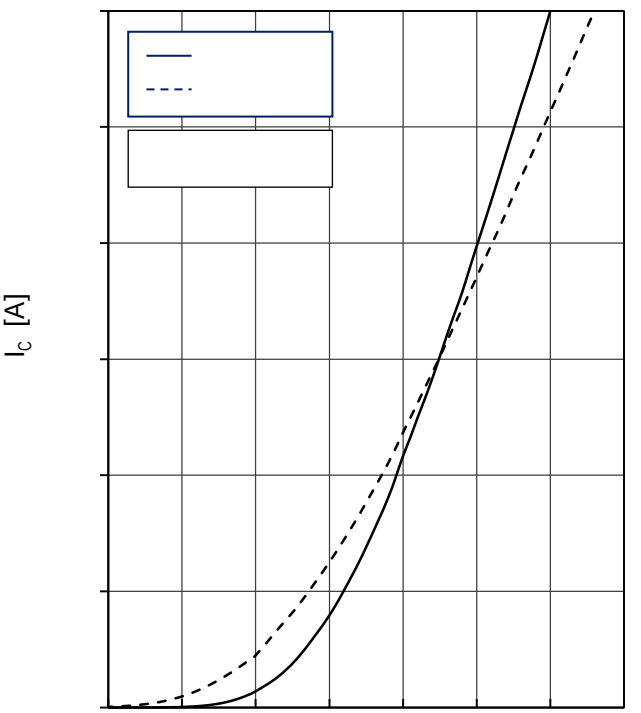


Fig2.IGBT Transfer Characteristics

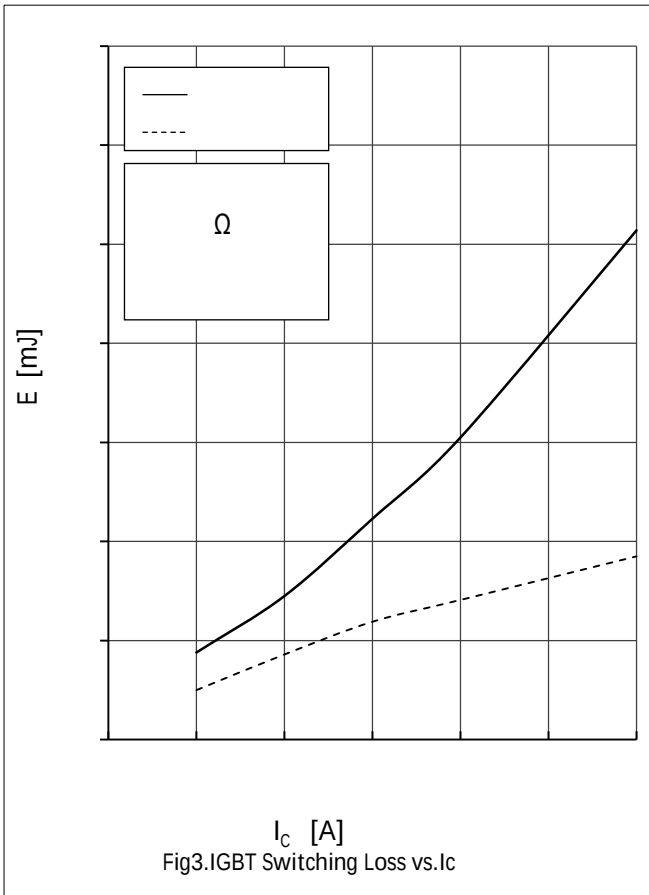


Fig3.IGBT Switching Loss vs.Ic

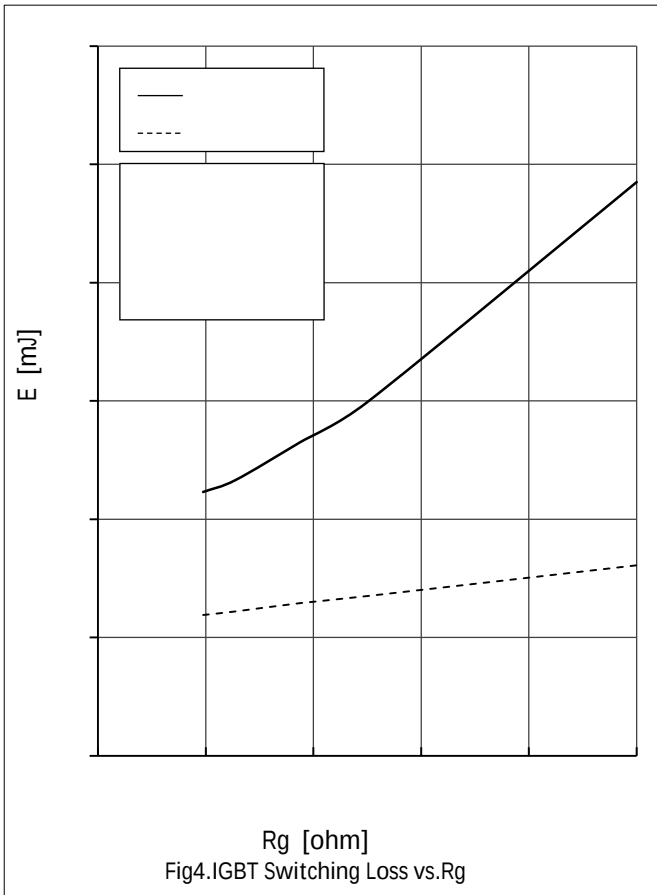


Fig4.IGBT Switching Loss vs.Rg

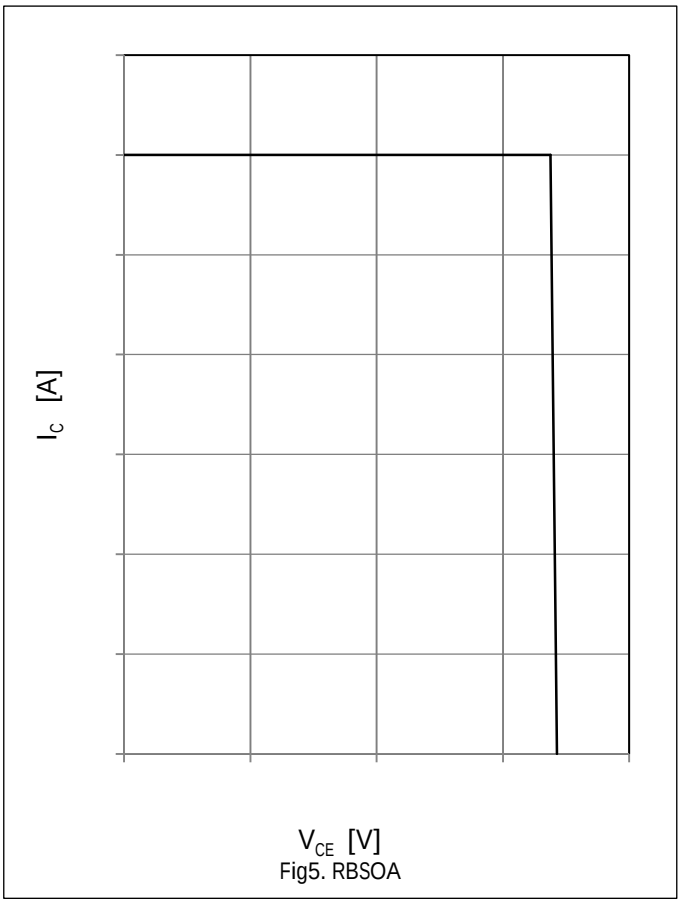


Fig5. RBSOA

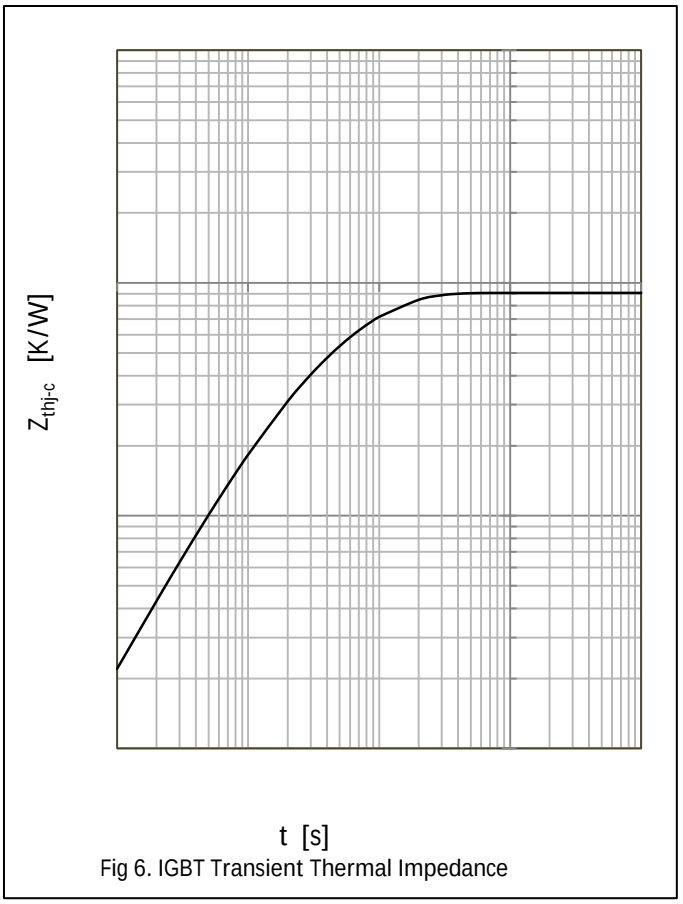
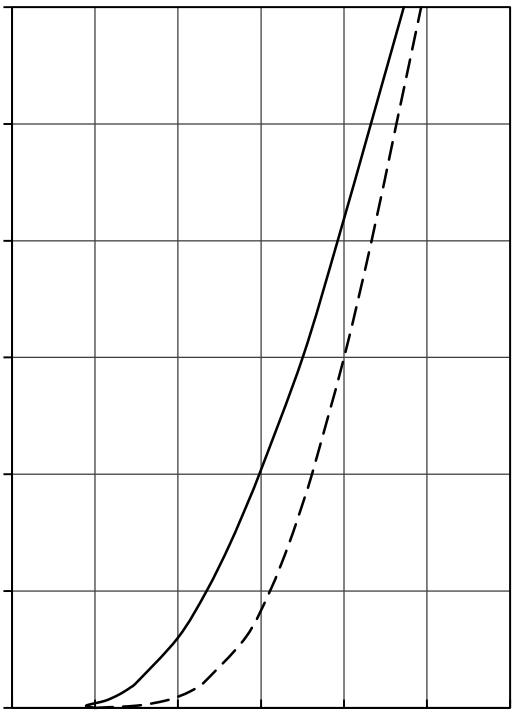


Fig 6. IGBT Transient Thermal Impedance



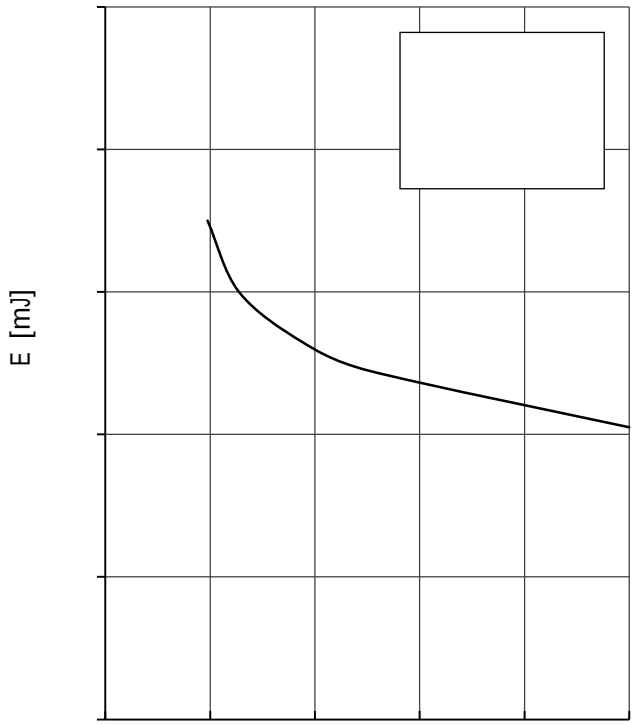


Fig9.Diode Switching Loss(Erec) vs.Rg

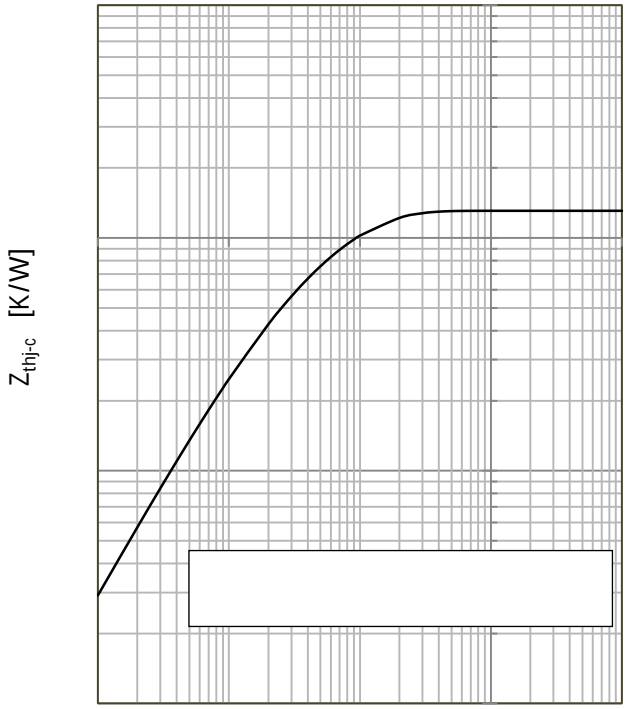


Fig10.Diode Transient Thermal Impedance

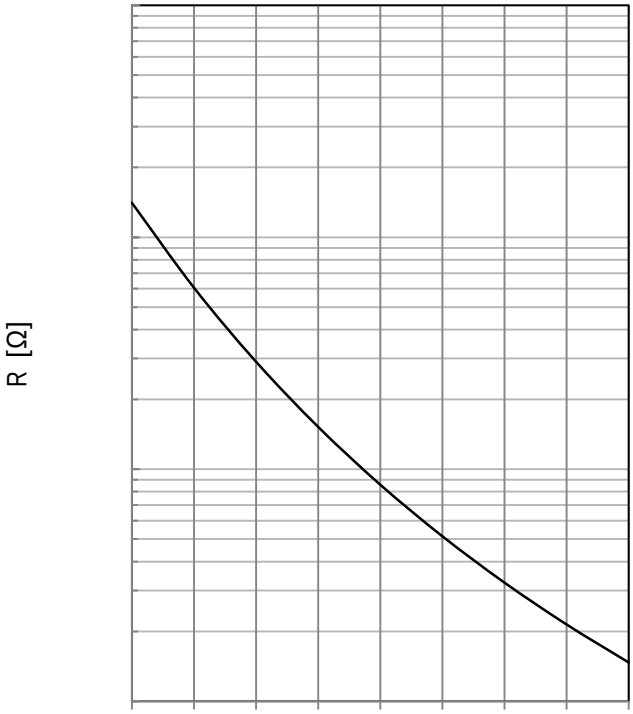


Fig 11. NTC Temperature Characteristic

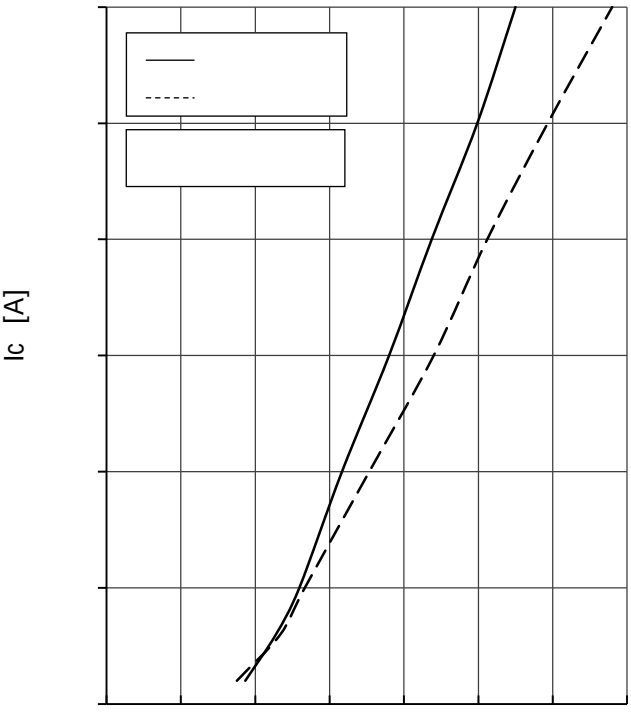


Fig12. IGBT-brake-Chopper output Characteristics

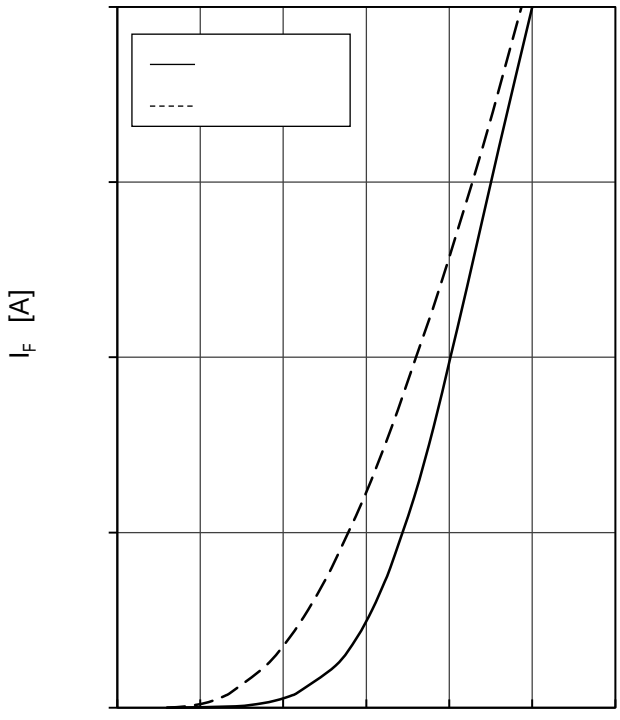


Fig13.Diode-brake-chopper Forward Characteristics

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.