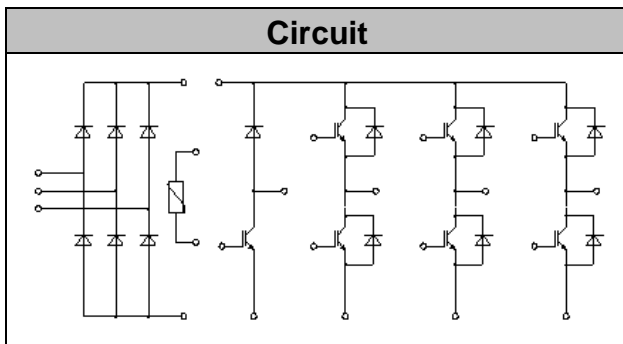


1200V  
15A

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



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	$I_C$	$T_C=100 \quad v_{jmax} \ 175$	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	$P_{tot}$	$T_C=25$ $T_{vjmax}=175$	155	W

# MG15P12P3 □

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	$V_{CE(sat)}$	$I_C=15A, V_{GE}=15V, T_{vj}=25$		1.80	2.20	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	$C_{ies}$	$V_{CE}=25V, V_{GE}=0V, f=1MHz, T_{vj}=25$		1.1		nF	
Reverse Transfer Capacitance	$C_{res}$			0.04		nF	
Gate-Emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25$			400	nA	
Turn-on Delay Time	$t_{d(on)}$	$I_C=15A, V_{CE}=600V, V_{GE}=\pm 15V, R_G=39, T_{vj}=25$		90		ns	
Rise Time	$t_r$			64		ns	
Turn-off Delay Time	$t_{d(off)}$			180		ns	
Fall Time	$t_f$			135		ns	
Energy Dissipation During Turn-on Time	$E_{on}$			1.42		mJ	
Energy Dissipation During Turn-off Time	$E_{off}$			0.78		mJ	
Turn-on Delay Time	$t_{d(on)}$		$I_C=15A, V_{CE}=600V, V_{GE}=\pm 15V, R_G=39, T_{vj}=125$		95		ns
Rise Time	$t_r$				70		ns
Turn-off Delay Time	$t_{d(off)}$				260		ns
Fall Time	$t_f$				180		ns
Energy Dissipation During Turn-on Time	$E_{on}$			1.85		mJ	
Energy Dissipation During Turn-off Time	$E_{off}$			1.13		mJ	
SC Data	$I_{SC}$	$t_p=10\mu s, V_{GE}=15V, T_{vj}=150, V_{CC}=900V, V_{CEM}=1200V$			90		A

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 <sup>2</sup> t-value	I <sup>2</sup> t	$V_R=0V, t_p=10ms, T_{vj}=125$	16.0	A <sup>2</sup> s
		$V_R=0V, t_p=10ms, T_{vj}=150$	14.0	

Forward Voltage	$V_F$	$I_F=15A, T_{vj}=25$		2.00	2.65	V
		$I_F=15A, T_{vj}=125$		2.10		
		$I_F=15A, T_{vj}=150$		2.10		
Recovered Charge	$Q_{rr}$	$I_F=15A$		1.20		uC
Peak Reverse Recovery Current	$I_{rr}$	$V_R=600V$ $-di_F/dt=600A/us$		13.0		A
Reverse Recovery Energy	$E_{rec}$	$T_{vj}=25$		0.37		mJ
Recovered Charge	$Q_{rr}$	$I_F=15A$		2.05		uC
Peak Reverse Recovery Current	$I_{rr}$	$V_R=600V$ $-di_F/dt=600A/us$		12.0		A
Reverse Recovery Energy	$E_{rec}$	$T_{vj}=125$		0.68		mJ

# MG15P12P3 □

Collector-Emitter Voltage	$V_{CES}$	$V_{GE}=0V, I_C=1mA, T_{vj}=25$	1200	V
Continuous Collector Current	$I_C$	$T_C=100$ $v_{jmax}$ 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	$P_{Tot}$	$T_C=25$ , $T_{vjmax}=175$	155	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	$V_{CE(sat)}$	$I_C=15A, V_{GE}=15V, T_{vj}=25$		1.85	2.25	V
		$I_C=15A, V_{GE}=15V, T_{vj}=125$		2.15		
		$I_C=15A, V_{GE}=15V, T_{vj}=150$		2.25		
Gate Charge	$Q_G$			0.09		uC
Input Capacitance	$C_{ies}$	$V_{CE}=25V, V_{GE}=0V,$ $f=1MHz, T_{vj}=25$		1.35		nF
Reverse Transfer Capacitance	$C_{res}$			0.08		nF
Gate-Emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25$			400	nA
Turn-on Delay Time	$t_{d(on)}$	$I_C=15A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=39$ $T_{vj}=25$		46		ns
Rise Time	$t_r$			45		ns
Turn-off Delay Time	$t_{d(off)}$			182		ns
Fall Time	$t_f$			168		ns
Energy Dissipation During Turn-on Time	$E_{on}$			0.92		mJ
Energy Dissipation During Turn-off Time	$E_{off}$			0.56		mJ



# MG15P12P3 □

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Turn

# MG15P12P3 □

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	$I_{FSM}$	$V_R=0V, t_p=10ms, T_{vj}=45$	270	A
$I^2t$ -value	$I^2t$	$V_R=0V, t_p=10ms, T_{vj}=45$	360	$A^2s$

Diode Forward Voltage	$V_F$	$I_F=15A, T_{vj}=150$	0.96	V
Reverse Current	$I_R$	$T_{vj}=150, V_R=1600V$	1.0	mA

Rated Resistance	$R_{25}$		5.0	k	
Deviation of R100	R/R	$T_C=100, R_{100}=493.3$	-5	5	%
Power Dissipation	$P_{25}$		20.0	mW	
B-value	$B_{25/50}$	$R_2=R_{25}\exp[B_{25/50}(1/T_2-1/(298.15 K))]$	3375	K	

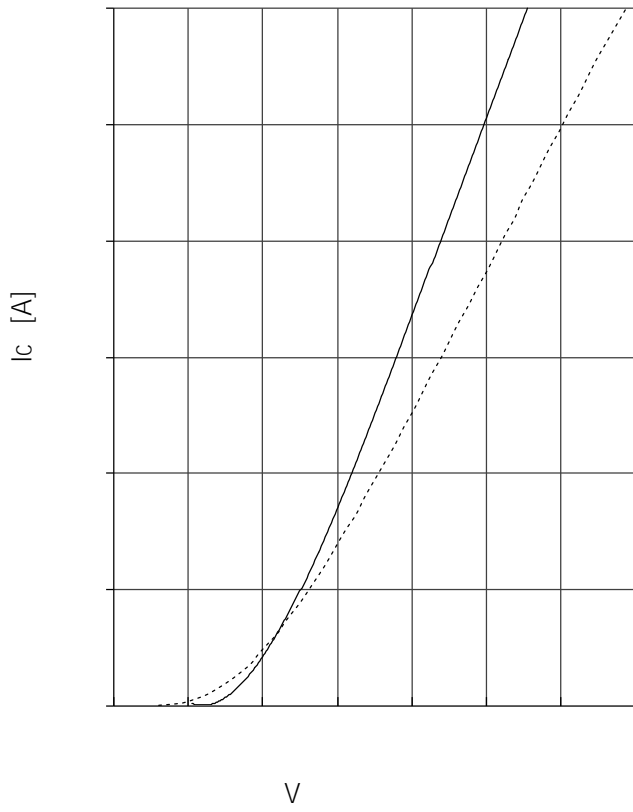
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Isolation Voltage	$V_{isol}$	$t=1\text{min}, f=50\text{Hz}$	2500			V
Maximum Junction Temperature	$T_{jmax}$				175	
Operating Junction Temperature	$T_{jop}$		-40		150	
Storage Temperature	$T_{stg}$		-40		125	
Stray-inductance-module	$L_{SCE}$			30		

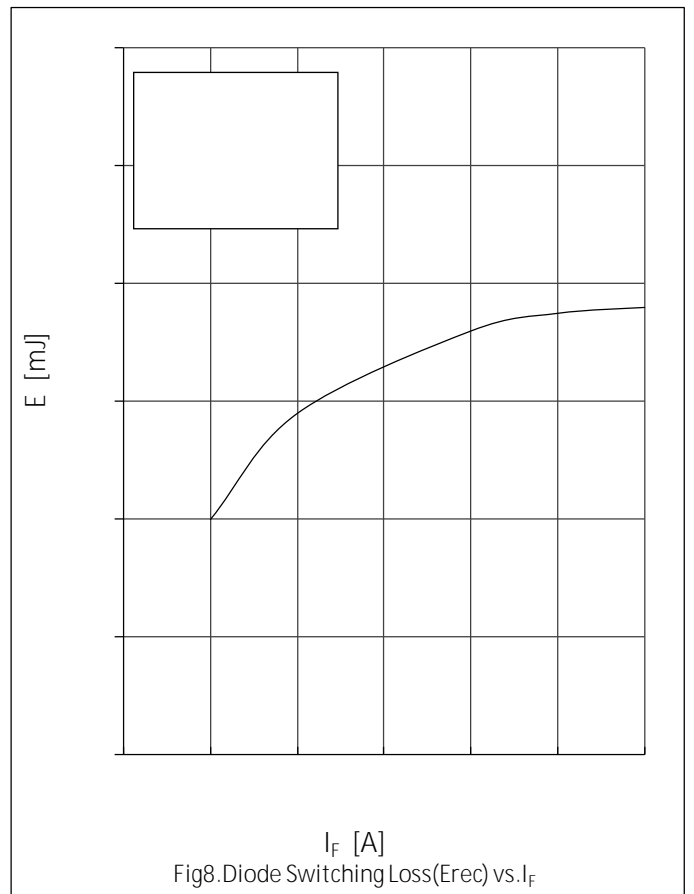
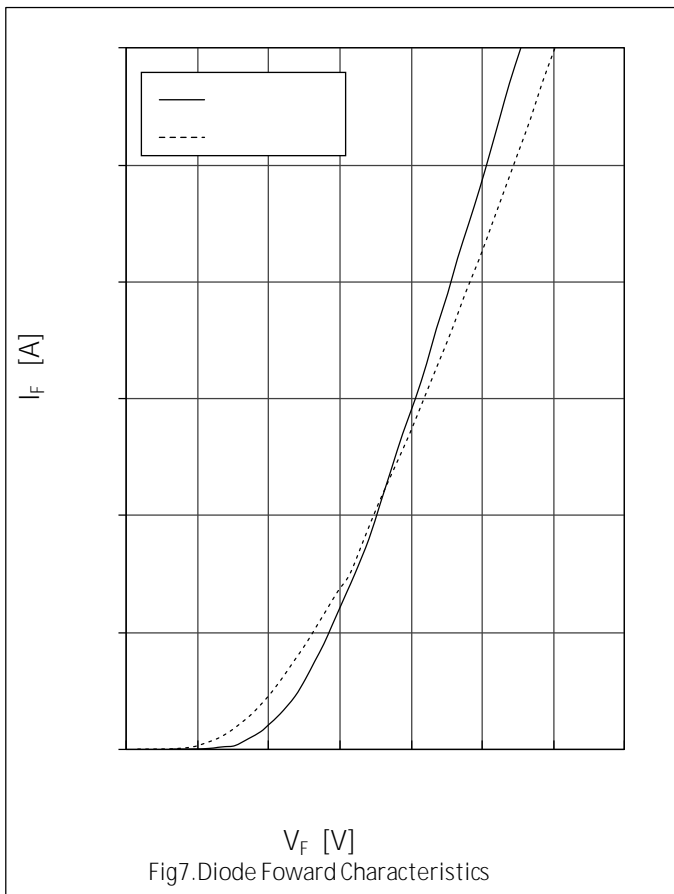
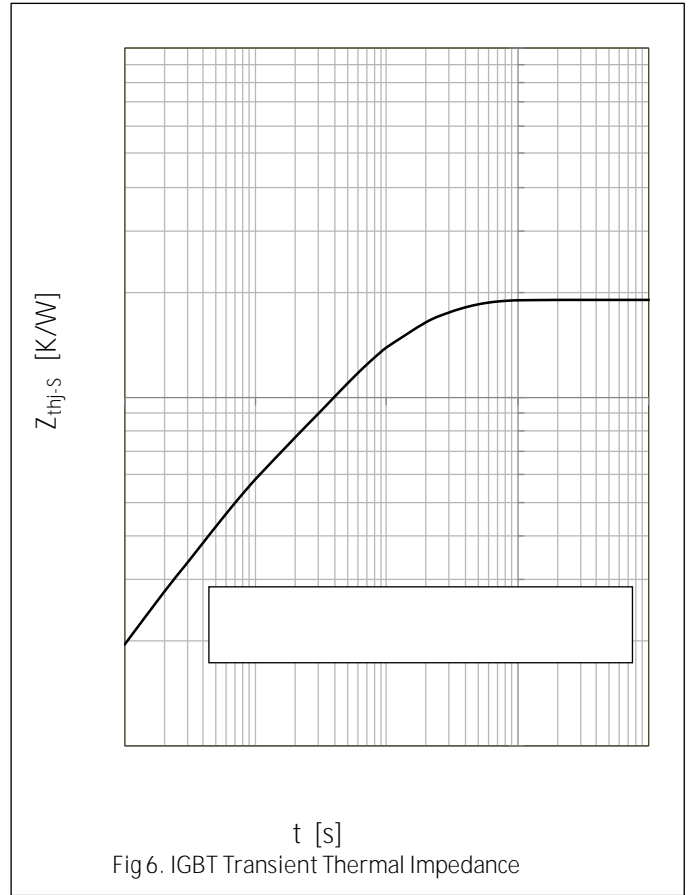
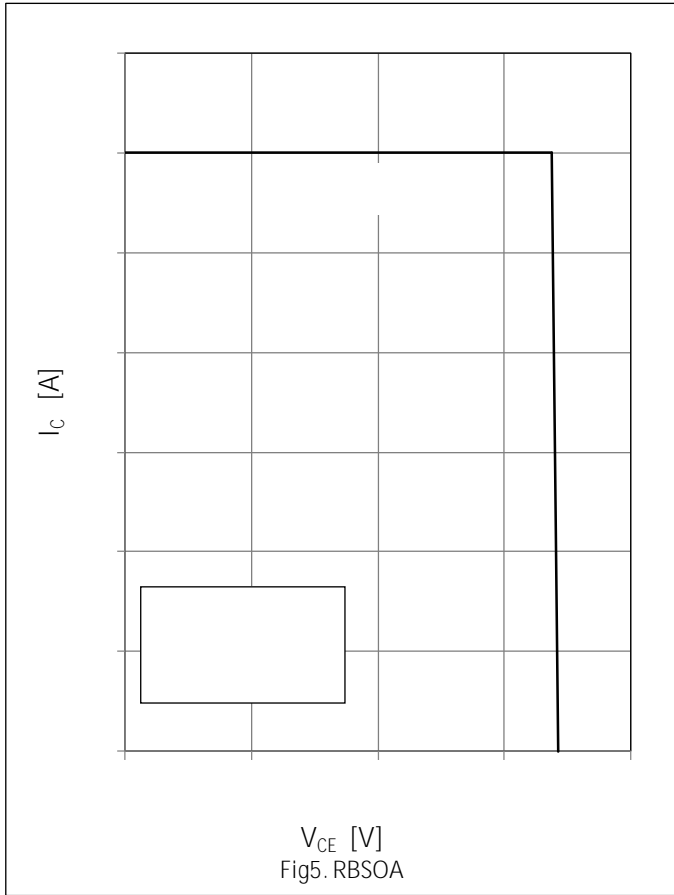
Module lead resistance,  
terminals-chip

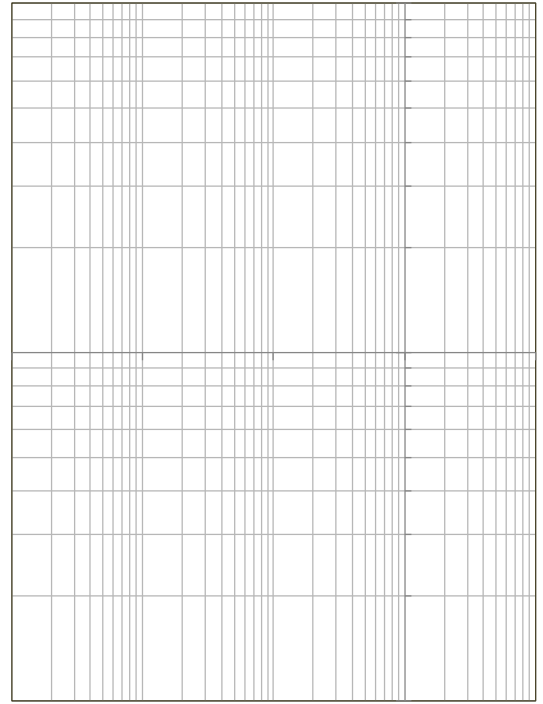
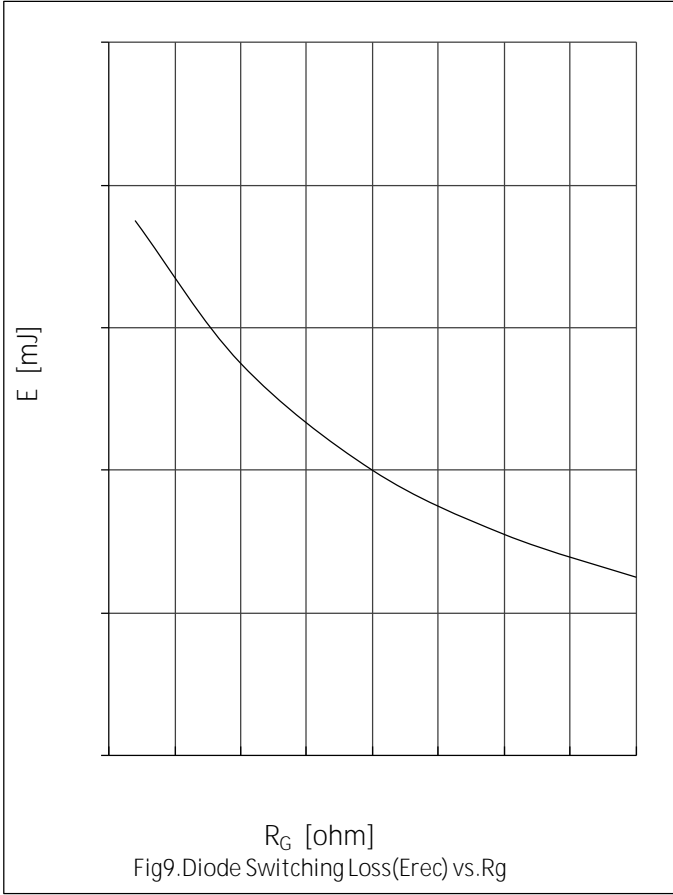
$R_{CC+EE}$

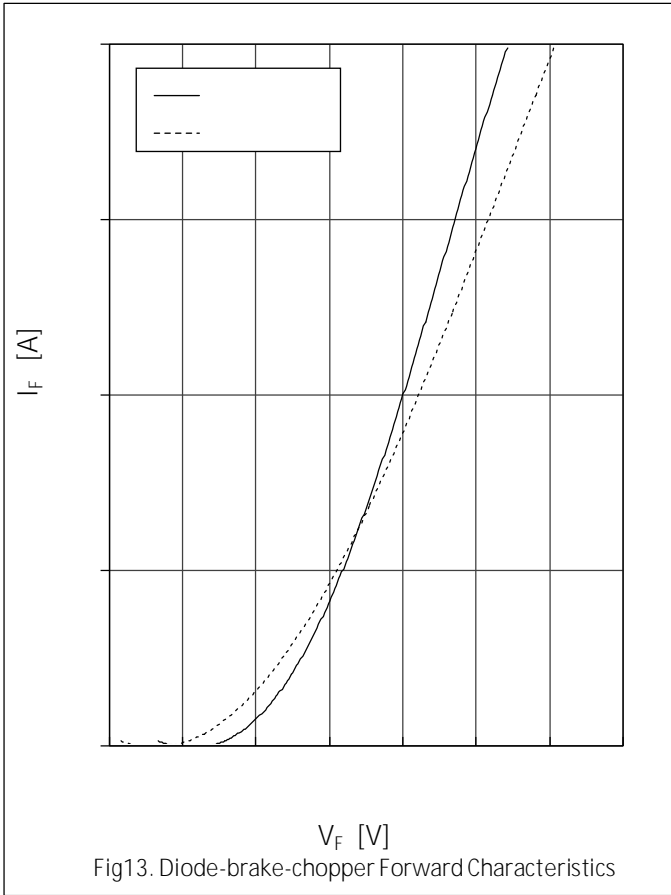
$T_C=25$





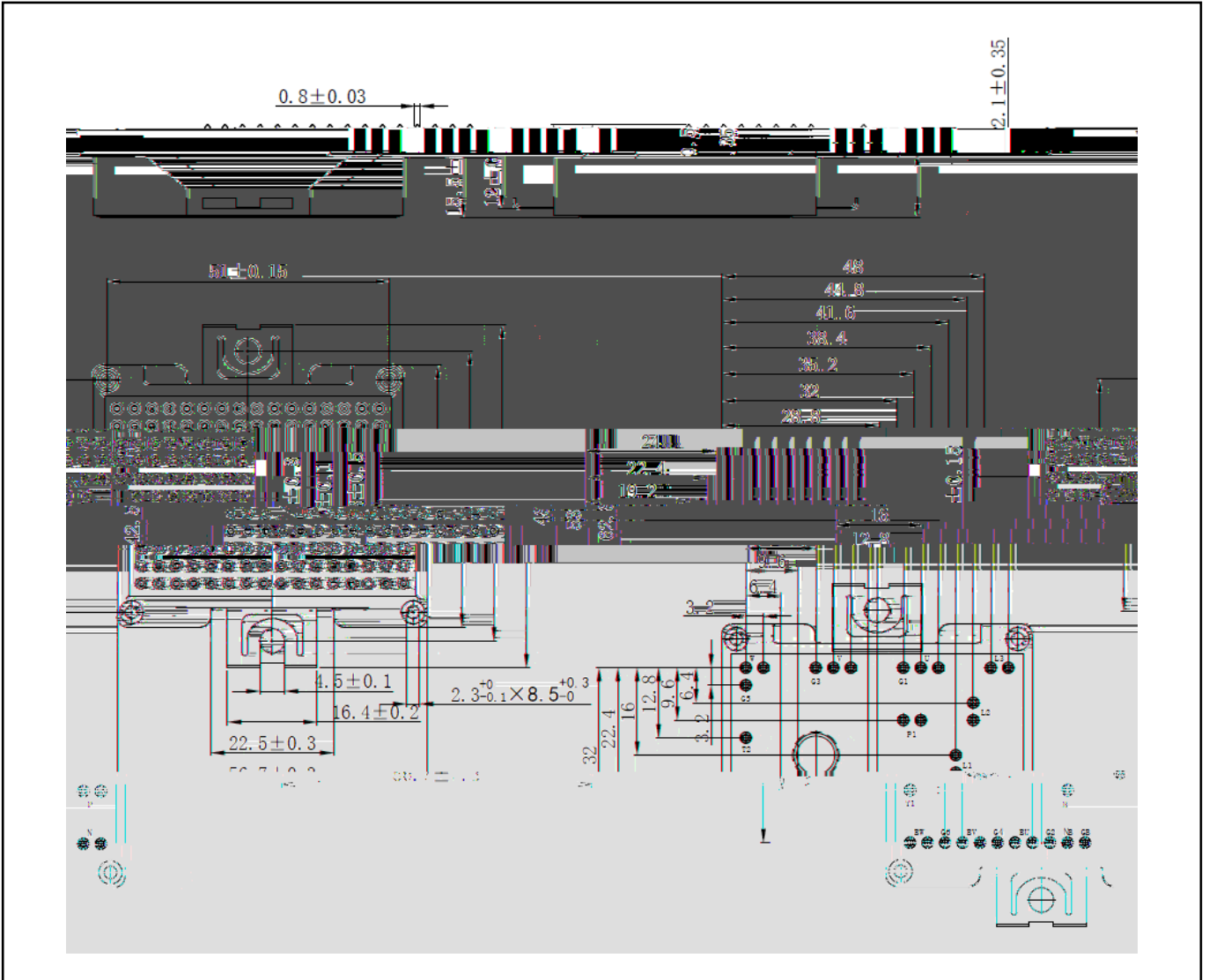
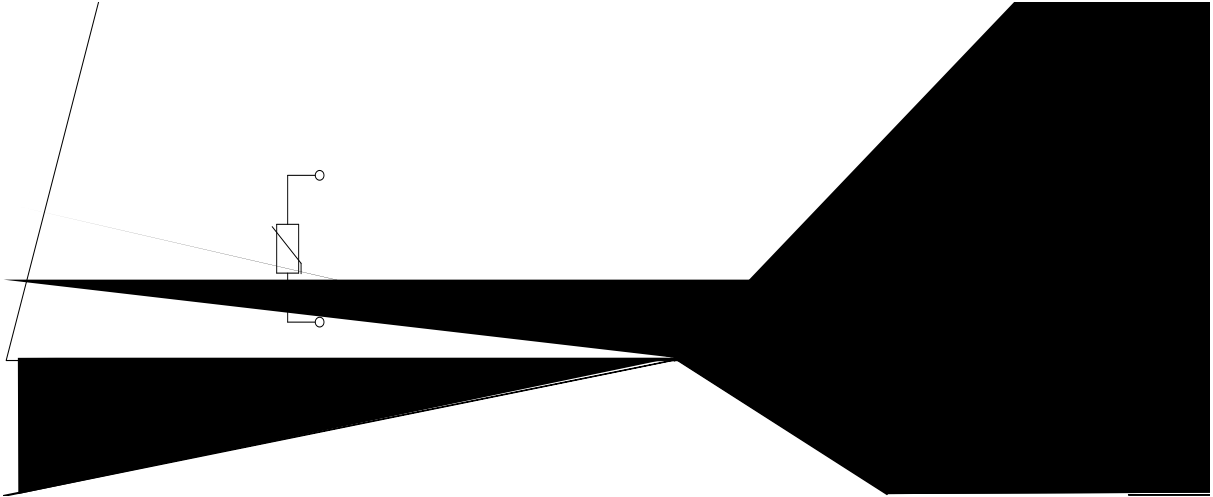








# MG15P12P3





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