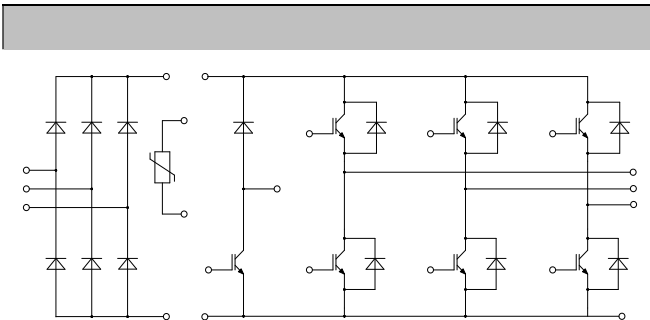




**120V**  
**15A**

**C**

- Motor Drives
- AC and DC servo drive amplifier
- UPS (Uninterruptible Power Supplies)



- Low switching losses
- Low  $V_{CE(sat)}$  with positive temperature coefficient
- Intrinsic fast & soft recovery anti-parallel FWD
- Low inductance case
- High short-circuit capability (10s)
- Maximum junction temperature 175°C

<b>Collector-Emitter Voltage</b>	<b><math>V_{CES}</math></b>	<b><math>V_{CE}=0V, I_C=1mA, T_J=25^\circ C</math></b>	<b>120</b>	<b>V</b>
<b>Continuous Collector Current</b>	<b><math>I_C</math></b>	<b><math>T_C=100^\circ C, T_{Jmax}=175^\circ C</math></b>	<b>15</b>	<b>A</b>
<b>Repetitive Peak Collector Current</b>	<b><math>I_{CM}</math></b>	<b><math>t_p=1ms</math></b>	<b>30</b>	<b>A</b>
<b>Gate-Emitter Voltage</b>	<b><math>V_{GES}</math></b>	<b><math>T_J=25^\circ C</math></b>	<b><math>\pm 20</math></b>	<b>V</b>
<b>Total Power Dissipation</b>	<b><math>P_{tot}</math></b>	<b><math>T_C=25^\circ C</math> <math>T_{Jmax}=175^\circ C</math></b>	<b>142</b>	<b>W</b>



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<b>Gate-emitter Threshold Voltage</b>	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=0.5mA, T_j=25C$	<b>52</b>	<b>60</b>	<b>68</b>	<b>V</b>
<b>Collector-Emitter Cutoff Current</b>	$I_{CS}$	$V_{CE}=120V, V_{GE}=0V, T_j=25C$			<b>10</b>	<b>nA</b>
<b>Collector-Emitter Saturation Voltage</b>	$V_{CE(sat)}$	$I_C=15A, V_{GE}=15V, T_j=25C$		<b>185</b>	<b>220</b>	<b>V</b>
		$I_C=15A, V_{GE}=15V, T_j=125C$		<b>215</b>		
		$I_C=15A, V_{GE}=15V, T_j=150C$		<b>225</b>		
<b>Gate Charge</b>	$Q_g$			<b>015</b>		<b><math>\mu C</math></b>
<b>Input Capacitance</b>	$C_{is}$	$V_{CE}=25V, V_{in}=0V$		<b>11</b>		<b>nF</b>
<b>Reverse Transfer Capacitance</b>	$C_{rs}$	$f=1MHz, T_j=25C$		<b>004</b>	<b>1</b>	<b>pF</b>



# MG15P12E1

<b>Repetitive Peak Reverse Voltage</b>	<b><math>V_{RRM}</math></b>	<b><math>T_j=25^{\circ}\text{C}</math></b>	<b>120</b>	<b>V</b>
<b>Continuous DC Forward Current</b>	<b><math>I_F</math></b>		<b>15</b>	<b>A</b>
<b>Repetitive Peak Forward Current</b>	<b><math>I_{FRM}</math></b>	<b><math>t_f=1\text{ms}</math></b>	<b>30</b>	<b>A</b>
<b>R<sub>th</sub> value</b>	<b><math>R_{th}</math></b>	<b><math>V_F=0, t_f=10\text{ms}, T_j=125^{\circ}\text{C}</math></b>	<b>160</b>	<b><math>\text{A}^{\circ}\text{C}</math></b>
		<b><math>V_F=0, t_f=10\text{ms}, T_j=150^{\circ}\text{C}</math></b>	<b>140</b>	

<b>Forward Voltage</b>	<b><math>V_F</math></b>	<b><math>I_F=15\text{A}, T_j=25^{\circ}\text{C}</math></b>		<b>200</b>	<b>265</b>
		<b><math>I_F=15\text{A}, T_j=125^{\circ}\text{C}</math></b>		<b>210</b>	
		<b><math>I_F=15\text{A}, T_j=150^{\circ}\text{C}</math></b>		<b>210</b>	
<b>Recovered Charge</b>	<b><math>Q_r</math></b>	<b><math>I_F=15\text{A}</math></b>		<b>120</b>	<b><math>\mu\text{C}</math></b>
<b>Peak Reverse Recovery Current</b>	<b><math>I_{rr}</math></b>	<b><math>V_F=60\text{V}</math> <b><math>-d_F/dt=60\text{A}/\mu\text{s}</math></b></b>		<b>130</b>	<b>A</b>
<b>Reverse Recovery Energy</b>	<b><math>E_{rec}</math></b>	<b><math>T_j=25^{\circ}\text{C}</math></b>		<b>037</b>	<b>mJ</b>
<b>Recovered Charge</b>	<b><math>Q_r</math></b>	<b><math>I_F=15\text{A}</math></b>		<b>205</b>	<b><math>\mu\text{C}</math></b>
<b>Peak Reverse Recovery Current</b>	<b><math>I_{rr}</math></b>	<b><math>V_F=60\text{V}</math> <b><math>-d_F/dt=60\text{A}/\mu\text{s}</math></b></b>		<b>120</b>	<b>A</b>
<b>Reverse Recovery Energy</b>	<b><math>E_{rec}</math></b>	<b><math>T_j=125^{\circ}\text{C}</math></b>		<b>068</b>	<b>mJ</b>



# MG15P12E1

<b>Collector-Emitter Voltage</b>	$V_{CES}$	$V_{CE}=0V, I_C=1mA, T_J=25^\circ C$	<b>120</b>	<b>V</b>
<b>Continuous Collector Current</b>	$I_C$	$T_C=100^\circ C, T_{Jmax}=175^\circ C$	<b>15</b>	<b>A</b>
<b>Repetitive Peak Collector Current</b>	$I_{CM}$	$t_p=1ms$	<b>30</b>	<b>A</b>
<b>Gate-Emitter Voltage</b>	$V_{GES}$	$T_J=25^\circ C$	$\pm 20$	<b>V</b>
<b>Total Power Dissipation</b>	$P_{tot}$	$T_C=25^\circ C, T_{Jmax}=175^\circ C$	<b>15</b>	<b>W</b>

<b>Gate-emitter Threshold Voltage</b>	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=0.5mA, T_J=25^\circ C$	<b>52</b>	<b>60</b>	<b>68</b>	<b>V</b>
<b>Collector-Emitter Cut-off Current</b>	$I_{CES}$	$V_{CE}=120V, V_{GE}=0V, T_J=25^\circ C$			<b>10</b>	<b>nA</b>
<b>Collector-Emitter Saturation Voltage</b>	$V_{CE(sat)}$	$I_C=15A, V_{GE}=15V, T_J=25^\circ C$		<b>185</b>	<b>225</b>	<b>V</b>
		$I_C=15A, V_{GE}=15V, T_J=125^\circ C$		<b>215</b>		
		$I_C=15A, V_{GE}=15V, T_J=150^\circ C$		<b>225</b>		
<b>Gate Charge</b>	$Q_g$			<b>009</b>		<b><math>\mu C</math></b>
<b>Input Capacitance</b>	$C_{is}$	$V_{CE}=25V, V_{GE}=0V$		<b>135</b>		<b>pF</b>
<b>Reverse Transfer Capacitance</b>	$C_{res}$	$f=1MHz, T_J=25^\circ C$		<b>008</b>		<b>pF</b>
<b>Gate-Emitter leakage current</b>	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V, T_J=25^\circ C$			<b>40</b>	<b>nA</b>
<b>Turn-on Delay/line</b>	$t_{on}$	$I_C=15A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_g=3\Omega$ $T_J=25^\circ C$		<b>46</b>		<b>ns</b>
<b>Rise Time</b>	$t_r$			<b>45</b>		<b>ns</b>
<b>Turn-off Delay/line</b>	$t_{off}$			<b>182</b>		<b>ns</b>
<b>Fall Time</b>	$t_f$			<b>168</b>		<b>ns</b>
<b>Energy Dissipation During Turn-on</b>	$E_{on}$			<b>092</b>		<b>nJ</b>
<b>Energy Dissipation During Turn-off</b>	$E_{off}$			<b>056</b>		<b>nJ</b>



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<b>TurnonDelay/line</b>	$t_{on}$	$I_C=15A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_G=3\Omega$ $T_J=125^\circ C$	<b>46</b>		<b>ns</b>
<b>RiseTime</b>	$t_r$		<b>68</b>		<b>ns</b>
<b>TurnoffDelay/line</b>	$t_{off}$		<b>28</b>		<b>ns</b>
<b>FallTime</b>	$t_f$		<b>20</b>		<b>ns</b>
<b>Energy Dissipation During Turnon/line</b>	$E_{on}$		<b>137</b>		<b>nJ</b>
<b>Energy Dissipation During Turnoff/line</b>	$E_{off}$		<b>081</b>		<b>nJ</b>
<b>SCData</b>	$I_C$	$T_p=10\mu s, V_{GE}=15V, T_J=150^\circ C,$ $V_{CE}=90V, V_{CEM}=120V$	<b>90</b>		<b>A</b>

<b>RepetitivePeakReverseVoltage</b>	$V_{RM}$	$T_J=25^\circ C$	<b>120</b>	<b>V</b>
<b>ContinuousDCForwardCurrent</b>	$I_F$		<b>10</b>	<b>A</b>
<b>RepetitivePeakForwardCurrent</b>	$I_{RM}$	$t_p=1ns$	<b>20</b>	<b>A</b>
<b>Rvalue</b>	$R_t$	$V_G=0, t_p=10ns, T_J=125^\circ C$	<b>160</b>	<b>A<math>\mu</math>s</b>
		$V_G=0, t_p=10ns, T_J=150^\circ C$	<b>140</b>	

<b>ForwardVoltage</b>	$V_F$	$I_F=10A, T_J=25^\circ C$	<b>200</b>	<b>250</b>	<b>V</b>
		$I_F=10A, T_J=125^\circ C$	<b>210</b>		
		$I_F=10A, T_J=150^\circ C$	<b>210</b>		
<b>RecoveredCharge</b>	$Q_r$	$I_F=10A$	<b>090</b>		<b><math>\mu C</math></b>
<b>PeakReverseRecoveryCurrent</b>	$I_r$	$V_G=60V$ $-d_r/d=50A\mu s$	<b>125</b>		<b>A</b>
<b>ReverseRecoveryEnergy</b>	$E_{rec}$	$T_J=25^\circ C$	<b>025</b>		<b>nJ</b>
<b>RecoveredCharge</b>	$Q_r$	$I_F=10A$	<b>170</b>		<b><math>\mu C</math></b>
<b>PeakReverseRecoveryCurrent</b>	$I_r$	$V_G=60V$ $-d_r/d=50A\mu s$	<b>104</b>		<b>A</b>
<b>ReverseRecoveryEnergy</b>	$E_{rec}$	$T_J=125^\circ C$	<b>050</b>		<b>nJ</b>



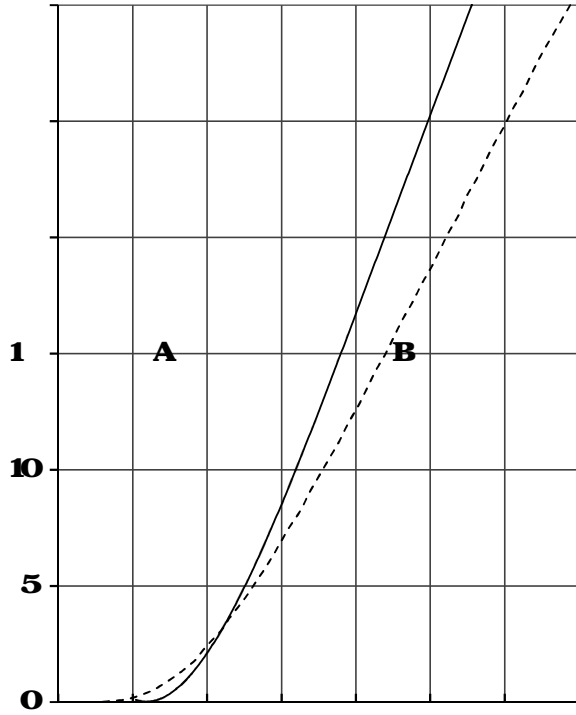
# MG15P12E1

<b>Repetitive Peak Reverse Voltage</b>	<b><math>V_{RRM}</math></b>	<b><math>T_J=25^{\circ}C</math></b>	<b>160</b>	<b>V</b>
<b>Average Output Current 50kHz, sine wave</b>	<b><math>I_{(AV)}</math></b>	<b><math>T_C=100^{\circ}C</math></b>	<b>20</b>	<b>A</b>
<b>Minimum RMS Current at Rectifier Output</b>	<b><math>I_{RMS}</math></b>	<b><math>T_C=100^{\circ}C</math></b>	<b>40</b>	<b>A</b>
<b>Surge Forward Current</b>	<b><math>I_{SM}</math></b>	<b><math>V_F=0, t_p=10ms, T_J=25^{\circ}C</math></b>	<b>200</b>	<b>A</b>
<b>Reverse Recovery Time</b>	<b><math>t_r</math></b>	<b><math>V_F=0, t_p=10ms, T_J=25^{\circ}C</math></b>	<b>300</b>	<b>ns</b>

<b>Diode Forward Voltage</b>	<b><math>V_F</math></b>	<b><math>I_F=15A, T_J=150^{\circ}C</math></b>		<b>0.96</b>	<b>V</b>
<b>Reverse Current</b>	<b><math>I_R</math></b>	<b><math>T_J=150^{\circ}C, V_R=160V</math></b>			<b>10 mA</b>

<b>Rated Resistance</b>	<b><math>R_{\theta}</math></b>			<b>50</b>	<b>k<math>\Omega</math></b>
<b>Deviation of R100</b>	<b>RR</b>	<b><math>T_C=100^{\circ}C, R_{100}=483^{\circ}</math></b>	<b>-5</b>		<b>5 %</b>
<b>Power Dissipation</b>	<b><math>P_{\theta}</math></b>				<b>200 mW</b>
<b>Breakdown Voltage</b>	<b><math>V_{BR}</math></b>	<b><math>R_{\theta} = R_{\theta} \times P_{BR} (1/T_C - 1/2815 K)</math></b>		<b>335</b>	<b>K</b>





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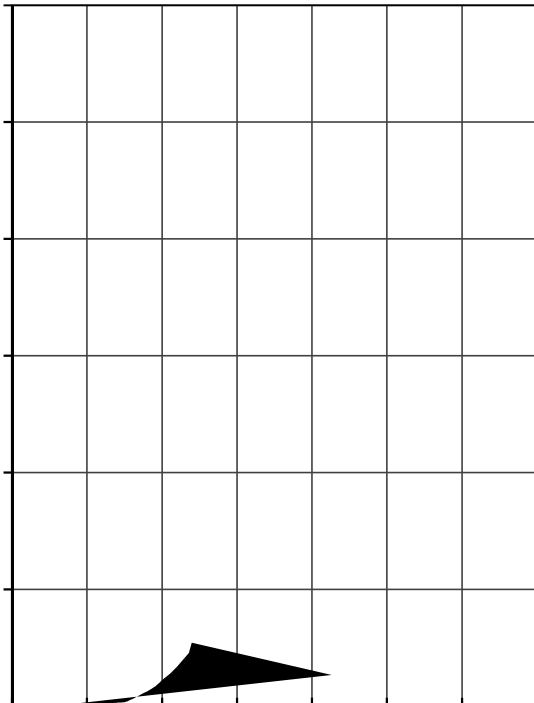
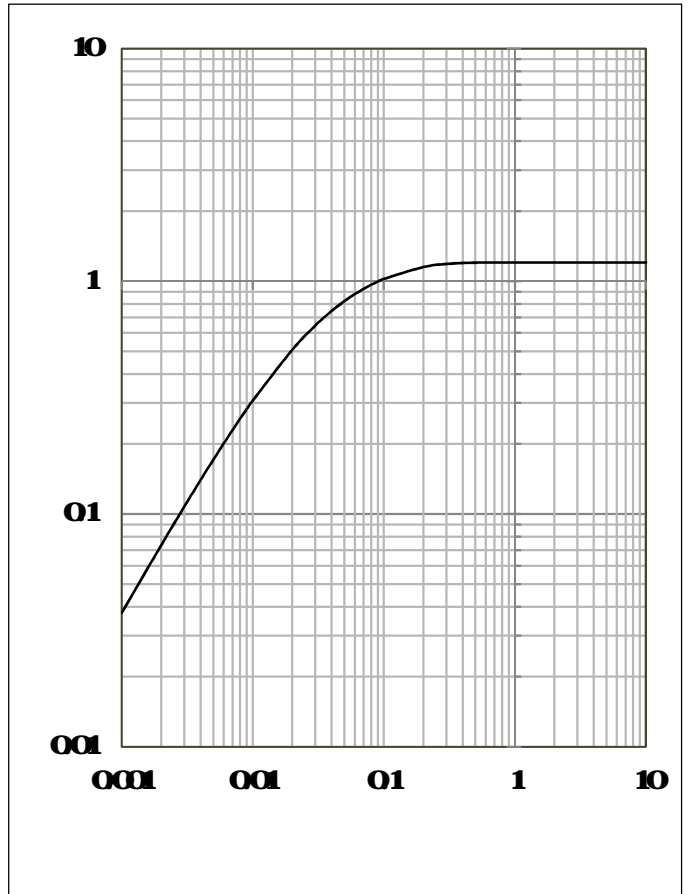
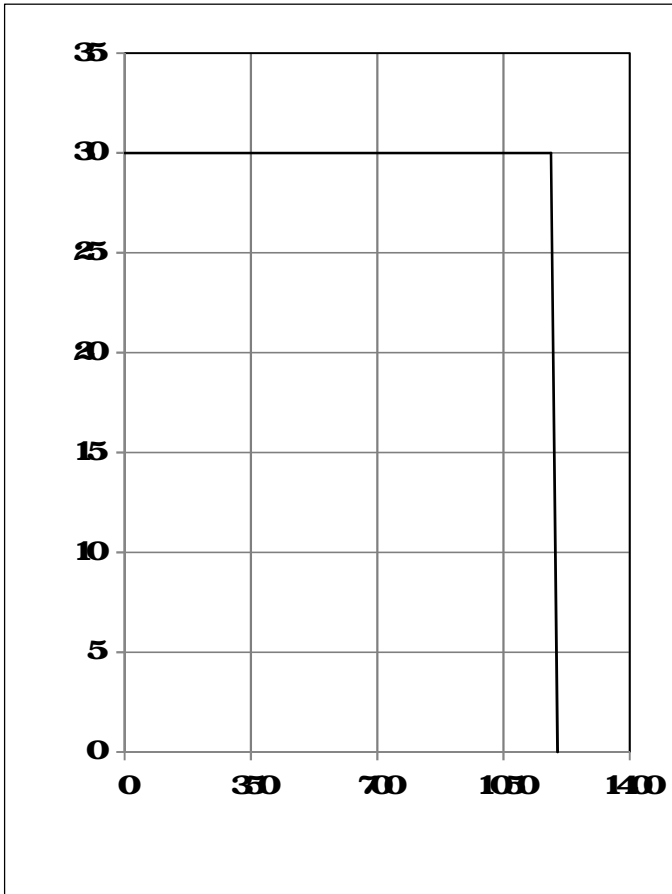
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