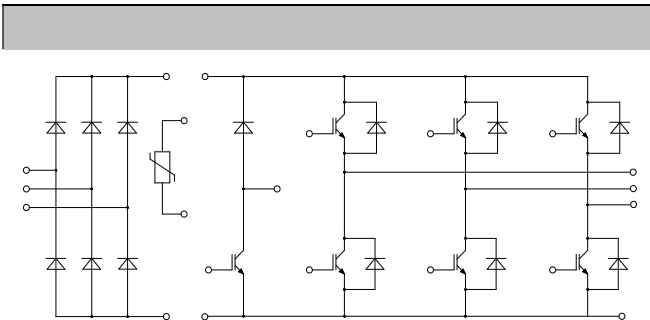




**C**

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

**Mitsubishi**  
**AC and DC speed 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 (10s)**  
**Maximum junction temperature 175°C**

<b>Collector-Emitter Voltage</b>	<b><math>V_{CES}</math></b>	<b><math>V_{CE}=0V, I_C=15A, T_J=25</math></b>	<b>120</b>	<b>V</b>
<b>Continuous Collector Current</b>	<b><math>I_C</math></b>	<b><math>T_C=100</math> <math>T_{Jmax}=175</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</math></b>	<b>20</b>	<b>V</b>
<b>Total Power Dissipation</b>	<b><math>P_{tot}</math></b>	<b><math>T_C=25</math> <math>T_{Jmax}=175</math></b>	<b>142</b>	<b>W</b>



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

FRX = 12A P = H (0) 0012

H (0) 0012 E

H B



<b>Repetitive Peak Reverse Voltage</b>	<b>V<sub>RRM</sub></b>	<b>T<sub>J</sub>=25</b>	<b>120</b>	<b>V</b>
<b>Continuous DC Forward Current</b>	<b>I<sub>F</sub></b>		<b>15</b>	<b>A</b>
<b>Repetitive Peak Forward Current</b>	<b>I<sub>FRM</sub></b>	<b>t<sub>F</sub>=1ms</b>	<b>30</b>	<b>A</b>
<b>R<sub>th(j-c)</sub> value</b>	<b>R<sub>th</sub></b>	<b>V<sub>F</sub>=0, t<sub>F</sub>=10ms, T<sub>J</sub>=125</b>	<b>160</b>	<b>As</b>
		<b>V<sub>F</sub>=0, t<sub>F</sub>=10ms, T<sub>J</sub>=150</b>	<b>140</b>	

<b>Forward Voltage</b>	<b>V<sub>F</sub></b>	<b>I<sub>F</sub>=15A, T<sub>J</sub>=25</b>		<b>200</b>	<b>265</b>	<b>V</b>
		<b>I<sub>F</sub>=15A, T<sub>J</sub>=125</b>		<b>210</b>		
		<b>I<sub>F</sub>=15A, T<sub>J</sub>=150</b>		<b>210</b>		
<b>Recovered Charge</b>	<b>Q<sub>r</sub></b>	<b>I<sub>F</sub>=15A</b>		<b>120</b>		<b>uC</b>
<b>Peak Reverse Recovery Current</b>	<b>I<sub>r</sub></b>	<b>V<sub>F</sub>=60V</b> <b>-d<sub>F</sub>/d<sub>t</sub>=60A/us</b>		<b>130</b>		<b>A</b>
<b>Reverse Recovery Energy</b>	<b>E<sub>rec</sub></b>	<b>T<sub>J</sub>=25</b>		<b>037</b>		<b>nJ</b>
<b>Recovered Charge</b>	<b>Q<sub>r</sub></b>	<b>I<sub>F</sub>=15A</b>		<b>205</b>		<b>uC</b>
<b>Peak Reverse Recovery Current</b>	<b>I<sub>r</sub></b>	<b>V<sub>F</sub>=60V</b> <b>-d<sub>F</sub>/d<sub>t</sub>=60A/us</b>		<b>120</b>		<b>A</b>
<b>Reverse Recovery Energy</b>	<b>E<sub>rec</sub></b>	<b>T<sub>J</sub>=125</b>		<b>068</b>		<b>nJ</b>



<b>Collector-Emitter Voltage</b>	$V_{CES}$	$V_{CE}=0V, I_C=1mA, T_j=25$	<b>120</b>	<b>V</b>
<b>Continuous Collector Current</b>	$I_C$	$T_C=100, \nu_{max}=15$	<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>	$V_{GES}$	$T_j=25$	<b>20</b>	<b>V</b>
<b>Total Power Dissipation</b>	$P_{tot}$	$T_C=25, T_{jmax}=175$	<b>15</b>	<b>W</b>

<b>Gate-emitter Threshold Voltage</b>	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=0.5mA, T_j=25$	<b>52</b>	<b>60</b>	<b>68</b>	<b>V</b>
<b>Collector-Emitter Cut-off Current</b>	$I_{CES}$	$V_{CE}=120V, V_{GE}=0V, T_j=25$			<b>10</b>	<b>nA</b>
<b>Collector-Emitter Saturation Voltage</b>	$V_{CE(sat)}$	$I_C=15A, V_{CE}=15V, T_j=25$		<b>185</b>	<b>225</b>	<b>V</b>
		$I_C=15A, V_{CE}=15V, T_j=125$		<b>215</b>		
		$I_C=15A, V_{CE}=15V, T_j=150$		<b>225</b>		
<b>Gate Charge</b>	$Q_g$			<b>009</b>		<b>nC</b>
<b>Input Capacitance</b>	$C_{in}$	$V_{CE}=25V, V_{GE}=0V$		<b>135</b>		<b>nF</b>
<b>Reverse Transfer Capacitance</b>	$C_{res}$	$f=1MHz, T_j=25$		<b>008</b>		<b>nF</b>
<b>Gate-Emitter Leakage current</b>	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V, T_j=25$			<b>40</b>	<b>nA</b>
<b>Turn-on Delay/line</b>	$t_{on}$	$I_C=15A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_g=3\Omega$ $T_j=25$		<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>



<b>TurnonDelay/line</b>	$t_{on}$	$I_C=15A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_G=3\Omega$ $T_J=125$	<b>46</b>		<b>ns</b>
<b>Rise/line</b>	$t_r$		<b>68</b>		<b>ns</b>
<b>TurnoffDelay/line</b>	$t_{off}$		<b>28</b>		<b>ns</b>
<b>Fall/line</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>	$I_C$	$T_p=10s, V_{GE}=15V, T_J=125$ , $V_{CE}=90V, V_{CEM}=120V$	<b>90</b>		<b>A</b>

<b>RepetitivePeakReverseVoltage</b>	$V_{RM}$	$T_J=25$	<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>	$R_t$	$V_C=0, t_p=10ns, T_J=125$	<b>160</b>	<b>As</b>
		$V_C=0, t_p=10ns, T_J=150$	<b>140</b>	

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



<b>Repetitive Peak Reverse Voltage</b>	<b><math>V_{RRM}</math></b>	<b><math>T_J=25</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</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</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</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</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</math></b>	<b>0.96</b>	<b>V</b>
<b>Reverse Current</b>	<b><math>I_R</math></b>	<b><math>T_J=150, V_R=160V</math></b>	<b>10</b>	<b>mA</b>

<b>Rated Resistance</b>	<b><math>R_{25}</math></b>		<b>50</b>	<b>k</b>
<b>Deviation of R100</b>	<b>RR</b>	<b><math>T_C=100, R_{100}=483</math></b>	<b>-5</b>	<b>5</b> %
<b>Power Dissipation</b>	<b><math>P_{25}</math></b>			<b>200</b> mW
<b>Temperature Coefficient</b>	<b><math>\alpha_{R250}</math></b>	<b><math>R_{25} - R_{250} \leq \alpha_{R250} (1/2 (2815 - 10))</math></b>	<b>335</b>	<b>K</b>





---

