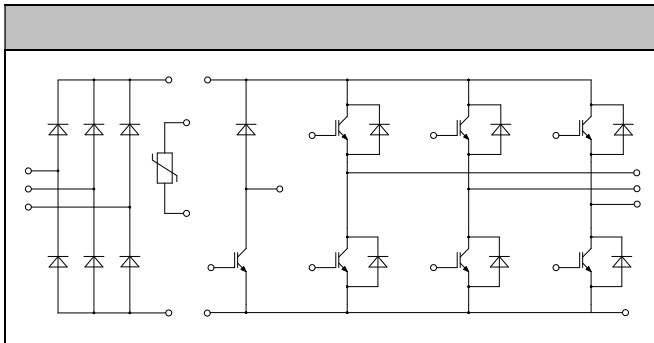




120V
50A

Mitsubishi
AC and DC speed drive amplifier
UPS (Uninterruptible Power Supplies)



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

Collector-Emitter Voltage	V_{CES}	$V_{CE}=0V, I_C=1mA, T_J=25$	120	V
Continuous Collector Current	I_C	$T_C=100$ <small>v_{jmax}</small> 175	50	A
Repetitive Peak Collector Current	I_{CM}	$t_p=1ms$	100	A
Gate-Emitter Voltage	V_{GES}	$T_J=25$	20	V
Total Power Dissipation	P_{tot}	$T_C=25$ $T_{jmax}=175$	288	W

Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=17mA, T_j=25$	52	58	64	V
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=120V, V_{GE}=0V, T_j=25C$			10	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=50A, V_{GE}=15V, T_j=25$		190	230	V
		$I_C=50A, V_{GE}=15V, T_j=125$		220		
		$I_C=50A, V_{GE}=15V, T_j=150$		230		
Gate Charge	Q_g			035		μC
Input Capacitance	C_{is}	$V_{CE}=25V, V_{GE}=0V$		260		pF
Reverse Transfer Capacitance	C_{res}	$f=1MHz, T_j=25C$		010		pF
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V, T_j=25$			40	mA
Turn-on Delay/line	t_{on}	$I_C=50A$ $V_{CE}=60V$ $V_{GE}=±15V$ $R_g=15$ $T_j=25$		168		ns
Rise time	t_r			31		ns
Turn-off Delay/line	t_{off}			30		ns
Fall time	t_f			78		ns
Energy Dissipation During Turn-on/line	E_{on}			542		nJ
Energy Dissipation During Turn-off/line	E_{off}			415		nJ
Turn-on Delay/line	t_{on}	$I_C=50A$ $V_{CE}=60V$ $V_{GE}=±15V$ $R_g=15$ $T_j=125$		175		ns
Rise time	t_r			42		ns
Turn-off Delay/line	t_{off}			46		ns
Fall time	t_f			148		ns
Energy Dissipation During Turn-on/line	E_{on}			726		nJ
Energy Dissipation During Turn-off/line	E_{off}			580		nJ
SCData	I_C	$T_p=10s, V_{GE}=15V, T_j=150, V_{CE}=90V, V_{CEM}=120V$		220		A



Repetitive Peak Reverse Voltage	V_{RRM}	$T_j=25$	120	V
Continuous DC Forward Current	I_F		50	A
Repetitive Peak Forward Current	I_{FRM}	$t_f=1ms$	100	A
Peak	I_F	$V_f=0, t_f=10ms, T_j=125$	500	A



Collector-Emitter Voltage	V_{CES}	$V_{GE}=0V, I_C=1mA, T_j=25$	120	V
Continuous Collector Current	I_C	$T_C=100$ $v_{jmax} 175$	35	A
Repetitive Peak Collector Current	I_{CRM}	$t_p=1ms$	70	A
Gate-Emitter Voltage	V_{GES}	$T_j=25$	20	V
Total Power Dissipation	P_{tot}	$T_C=25$ $T_{jmax}=175$	227	W

Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=14mA, T_j=25$	52	58	64	V
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=120V, V_{GE}=0V, T_j=25C$			10	nA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=35A, V_{GE}=15V, T_j=25$		185	225	V
		$I_C=35A, V_{GE}=15V, T_j=125$		215		
		$I_C=35A, V_{GE}=15V, T_j=150$		225		
Gate Charge	Q_g			027		nC
Input Capacitance	C_{in}	$V_{CE}=25V, V_{GE}=0V$		200		nF
Reverse Transfer Capacitance	C_{in}	$f=1MHz, T_j=25C$		007		nF
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V, T_j=25$			40	nA
Turn-on Delay/line	t_{on}	$I_C=35A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_g=12$ $T_j=25$		25		ns
Rise time	t_r			13		ns
Turn-off Delay/line	t_{off}			21		ns
Fall time	t_f			115		ns
Energy Dissipation During Turn-on	E_{on}			190		nJ
Energy Dissipation During Turn-off	E_{off}			200		nJ





Repetitive Peak Reverse Voltage	V_{RRM}	$T_f=25$	160	V
Average Output Current 50kHz, sine wave	$I_{(AV)}$	$T_c=100$	6	A
Minimum RMS Current at Rectifier Output	I_{RSM}	$T_c=100$	110	A
Surge Forward Current	I_{SM}	$V_f=0, t_f=10ms, T_f=5$	80	A
ft value	f_t	$V_f=0, t_f=10ms, T_f=5$	360	ns

Diode Forward Voltage	V_f	$I_f=50A, T_f=125$	10	V
Reverse Current	I_r	$T_f=125, V_r=160V$	15	nA

Rated Resistance	R_{θ}		50	k
Deviation of R100	RR	$T_c=100, R_{100}=483$	-5	5 %
Power Dissipation	P_{θ}			200 mW
B value	B_{550}	$R_{\theta} = R_{\theta} \exp\{P_{550} (1/T_c - 1/298.15)\}$	335	K



MG50P12E2

I^H
D

Isd	V_{sd}	t_{1min} f=50Hz	250			V
Minimum Junction Temperature	T_{jmax}				175	
Quasi Junction Temperature	T_{jq}		-40		150	
Storage Temperature	T_{stg}		-40		125	

