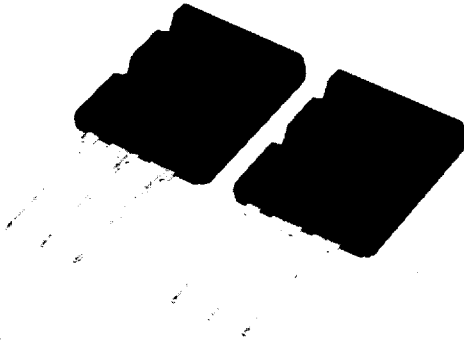


CT60AM-20

RESONANT INVERTER USE

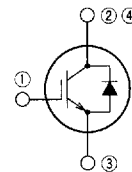
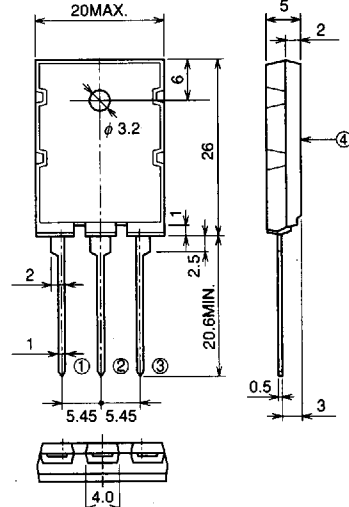
CT60AM-20



- V_{CES} 1000V
- I_C 60A
- Integrated Fast Recovery Diode

OUTLINE DRAWING

Dimensions in mm



- ① GATE
- ② COLLECTOR
- ③ EMITTER
- ④ COLLECTOR

TO-3PL

APPLICATION

Microwave ovens, electromagnetic cooking devices, rice-cookers, voltage-resonant inverter circuit electric appliances.

MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$)

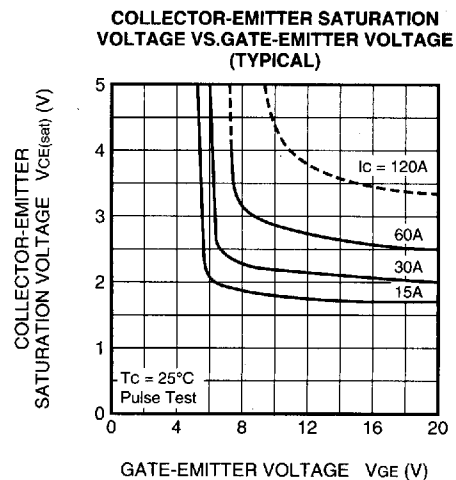
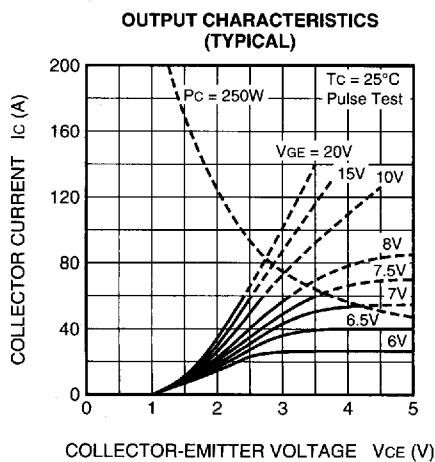
Symbol	Parameter	Conditions	Ratings	Unit
V_{CES}	Collector-emitter voltage	$V_{GE} = 0V$	1000	V
V_{GES}	Gate-emitter voltage	$V_{CE} = 0V$	± 20	V
V_{GEM}	Peak gate-emitter voltage	$V_{CE} = 0V, t_w = 0.5s$	± 30	V
I_C	Collector current		60	A
I_{CM}	Collector current (Pulsed)	$t_w = 1ms$	120	A
I_E	Emitter current		40	A
P_C	Maximum power dissipation	$T_c = 25^\circ\text{C}$	250	W
T_j	Junction temperature		$-40 \sim +150$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-40 \sim +150$	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS (T_j = 25°C unless otherwise noted)

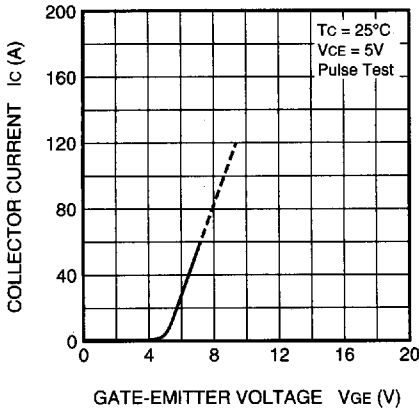
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
ICES	Collector current	VCE = 1000V, VGE = 0V	—	—	1	mA
IGES	Gate leakage current	VGE = ±20V, VCE = 0V	—	—	±0.5	μA
VGE(th)	Gate-emitter threshold voltage	VCE = 10V, IC = 6mA	2.0	—	6.0	V
VCE(sat)	Collector-emitter saturation voltage	IC = 60A, VCE = 15V	—	2.6	3.5	V
Cies	Input capacitance	VCE = 25V, VGE = 0V, f = 1MHz	—	1950	—	pF
Coes	Output capacitance		—	170	—	pF
Cres	Reverse transfer capacitance		—	65	—	pF
td (on)	Turn-on delay time	IC = 60A, Resistance load VCC = 300V, VGE = 15V, RG = 25Ω	—	0.04	—	μs
tr	Fall time		—	0.15	—	μs
td (off)	Turn-off delay time		—	0.30	—	μs
tr	Rise time		—	0.30	—	μs
Etail	Tail loss	ICP = 60A, Tj = 125°C, dv/dt = 200V/μs	—	0.6	1.0	mJ/pls
ICtail	Collector tail current		—	6	12	A
VEC	Emitter-collector voltage	IE = 60A	—	—	3	V
Trr	Reverse recovery time	IE = 60A, di/dt = 20A/μs	—	0.5	2	μs
Rth (j-c)	Thermal resistance (IGBT part)	Junction to case	—	—	0.5	°C/W
Rth (j-c)	Thermal resistance	Junction to case	—	—	4.0	°C/W

PERFORMANCE CURVES

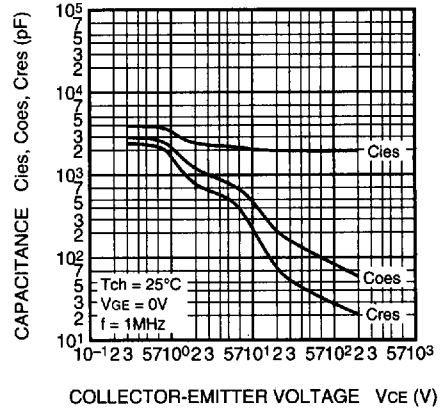


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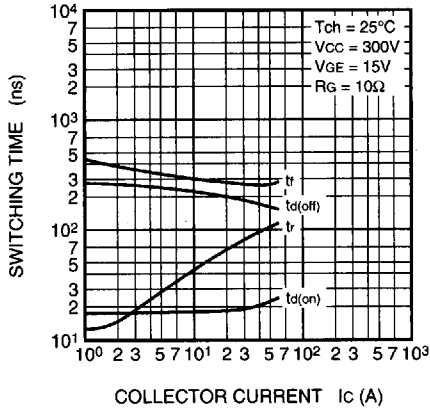
COLLECTOR CURRENT VS.
GATE-EMITTER VOLTAGE
(TYPICAL)



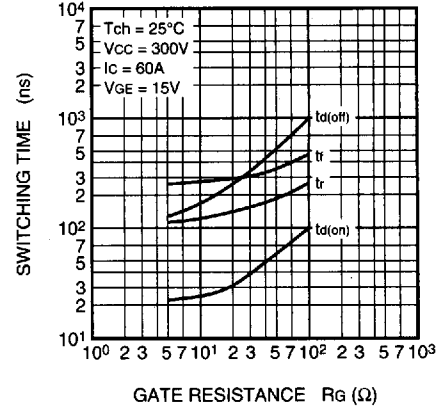
CAPACITANCE VS.
COLLECTOR-EMITTER VOLTAGE
(TYPICAL)



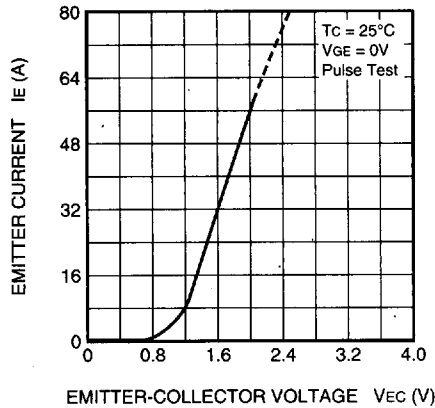
SWITCHING CHARACTERISTICS
(TYPICAL)



SWITCHING TIME VS.GATE RESISTANCE
(TYPICAL)



TRANSFER CHARACTERISTICS
(TYPICAL)



MITSUBISHI POWER MOSFET

LEAD FORMING OUTLINE AND TAPING

LEAD FORMING

(1) TO-220 outline

Applicable device FS**UM-***A

Standard outline	Standard forming outline			
	A5	A6	A8	AA
AJ	AN	AS	AT	
Dimensions	$a=3.0\pm0.5$, $b=14.7\pm0.5$, $c=5.0\pm0.5$, $d=4.5\pm0.5$, $e=20.1\pm0.5$, $f=3.0\pm0.5$, $g=15.5\pm0.5$ $h=16.0\pm0.5$, $i=5.5\pm0.5$ ※Dimensions measured during processing			
	Unit : mm			

(1) TO-220 full molded outline

Applicable device FS**KM-***A

Standard outline	Standard forming outline			
	A5	A6	A8	AA
AG	AH	AN	AS	
Dimensions	$a=3.0\pm0.5$, $b=14.7\pm0.5$, $c=5.0\pm0.5$, $d=4.5\pm0.5$, $e=20.1\pm0.5$, $g=15.5\pm0.5$, $h=16.0\pm0.5$, $i=5.5\pm0.5$, $j=19.0\pm0.5$, $k=7.75\pm0.5$, $l=4.0\pm0.5$, $m=15.1\pm0.5$, $n=16.5\pm0.5$, $o=3.8\pm0.35$ ※Dimensions measured during processing			
	Unit : mm			

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MITSUBISHI POWER MOSFET

LEAD FORMING OUTLINE AND TAPING

(2) TO-220 full molded outline

Applicable device	FS**KM-***A
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Standard outline	Standard forming outline			
	AT	AU	AV	AW
Dimensions	$a=3.0\pm0.5$, $b=14.7\pm0.5$, $c=5.0\pm0.5$, $d=4.5\pm0.5$, $e=20.1\pm0.5$, $g=15.5\pm0.5$, $h=16.0\pm0.5$, $i=5.5\pm0.5$, $j=19.0\pm0.5$, $k=7.75\pm0.5$, $l=4.0\pm0.5$, $m=15.1\pm0.5$, $n=16.5\pm0.5$, $o=3.8\pm0.35$ ※ Dimensions measured during processing			
	Unit : mm			

(3) TO-3P outline

Applicable device	FS**SM-***A · CT**SM-**
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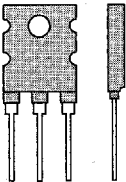
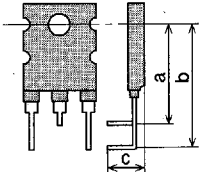
Standard outline	Standard forming outline			
	A7	A8	A9	AB
Dimensions	$a=23.5$, $b=5.45$, $c=23$, $d=9.5$, $e=4$, $f=21.5$ ※ Dimensions measured during processing			
	Unit : mm			

MITSUBISHI POWER MOSFET

LEAD FORMING OUTLINE AND TAPING

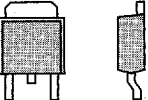
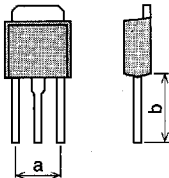
(4) TO-3PL outline

Applicable device	CT**AM-***
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Standard outline	Standard forming outline	Dimensions	a=24±0.5 b=31.5±0.5 c=13.3±0.6 ※Dimensions measured during processing	Unit : mm
	AC 			

(5) MP-3 outline

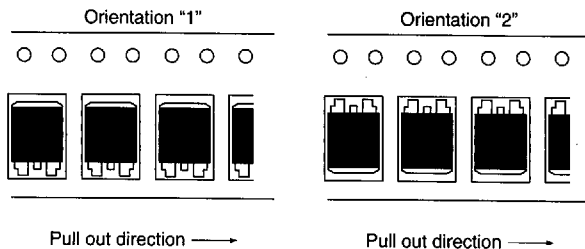
Applicable device	FS**AS-**A・CT20A**-8
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Standard outline	Standard forming outline	Dimensions	a=4.6 b=14min. ※Dimensions measured during processing	Unit : mm
	A1 			

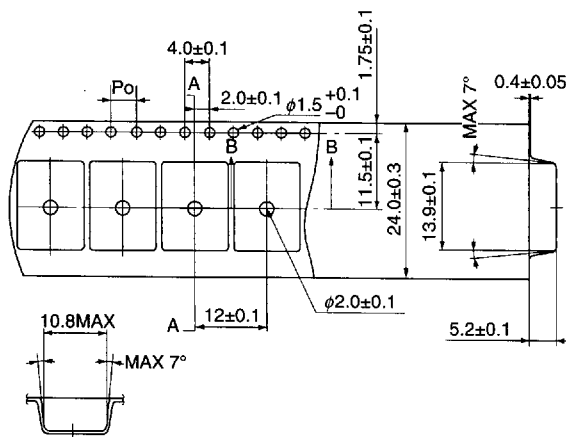
(1) TO-220S

Diagram illustrating the components of a symbol:

- Type No.
- Symbol indicating taped components
- Taped orientation

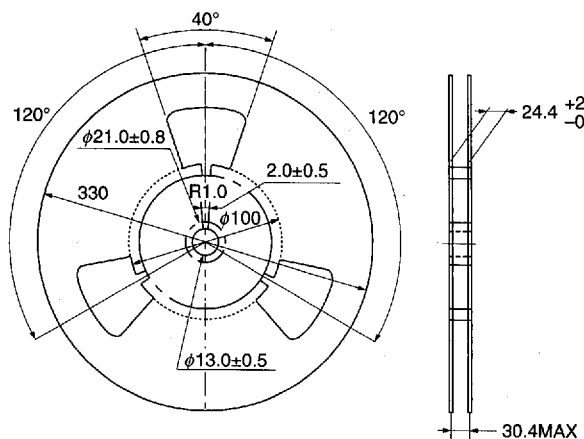


- Tape shape and dimensions



Notice : The cumulative pitch error of Po (Free hole pitch) is $\pm 0.2\text{mm}$ per 10 pitches.

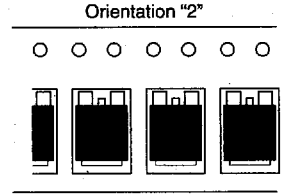
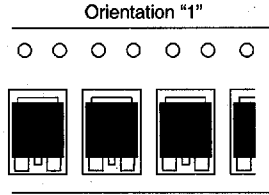
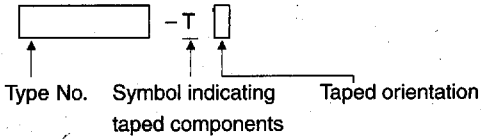
- Reel shape and dimensions



LEAD FORMING OUTLINE AND TAPING

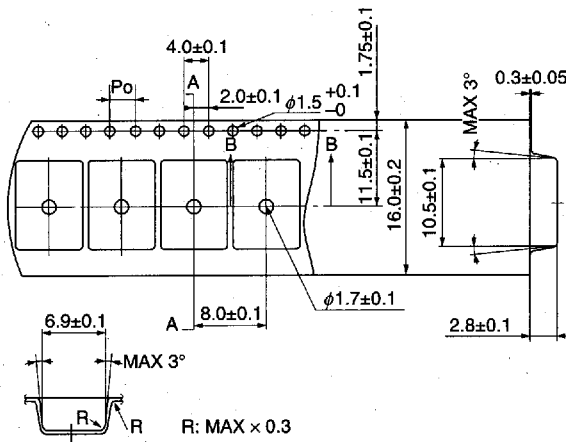
(2) MP-3

(a) Marking



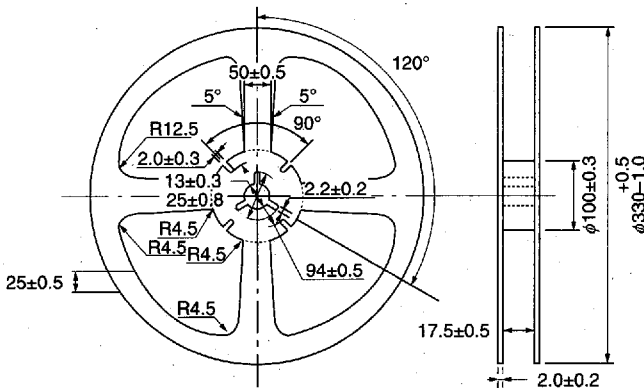
(b) Taping

• Tape shape and dimensions



Notice : The cumulative pitch error of Po (Free hole pitch) is $\pm 0.2\text{mm}$ per 10 pitches.

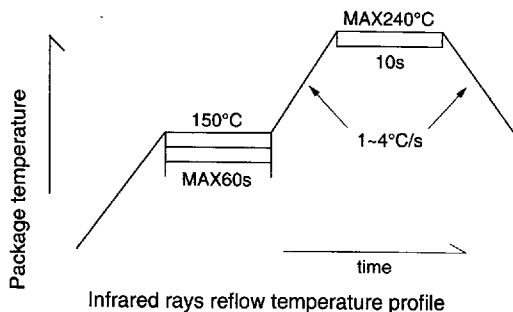
• Reel shape and dimensions



Recommended conditions for surface mounting type

Outline : TO-220S, MP-3

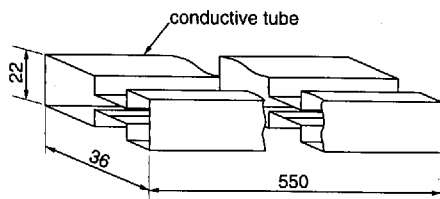
- (1) Board : Alumina, Insulated metal board
- (2) Solder plate thickness : 150 μ m~250 μ m
- (3) Temperature profile



Individual package for lead forming outline

- (1) TO-220, TO-220FN, TO-220C, TO-220S

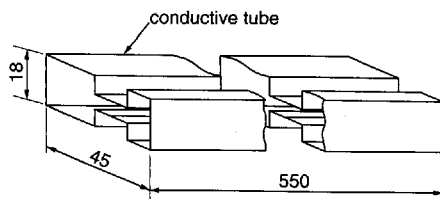
Dimensions in (Unit : mm)



The capacity is 50 p.c.s. (max.)

- (2) TO-3P

Dimensions in (Unit : mm)



The capacity is 30 p.c.s. (max.)