MITSUBISHI INSULATED GATE BIPOLAR TRANSISTOR

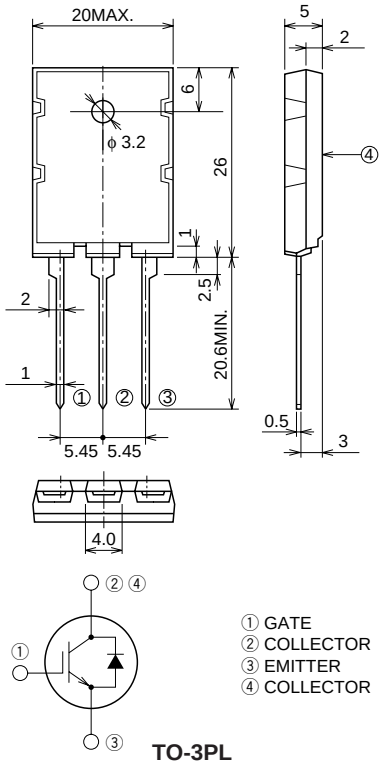
CT60AM-18B

RESONANT INVERTER USE

CT60AM-18B

- V_{CES} 900V
- I_C 60A
- Integrated Fast Recovery Diode

OUTLINE DRAWING Dimensions in mm



TO-3PL

APPLICATION

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

MAXIMUM RATINGS (T_C = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CES}	Collector-emitter voltage	V_{GE} = 0V	900	V
V_{GES}	Gate-emitter voltage	V_{CE} = 0V	±20	V
V_{GEM}	Peak gate-emitter voltage	V_{CE} = 0V	±30	V
I_C	Collector current		60	A
I_{CM}	Collector current (Pulsed)		120	A
I_E	Emitter current		40	A
P_C	Maximum power dissipation	T_C = 25°C	200	W
T_j	Junction temperature		–40 ~ +150	°C
T_{stg}	Storage temperature		–40 ~ +150	°C

MITSUBISHI ELECTRIC

CT60AM-18B

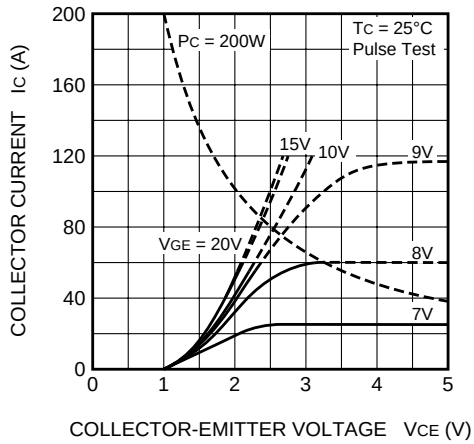
RESONANT INVERTER USE

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

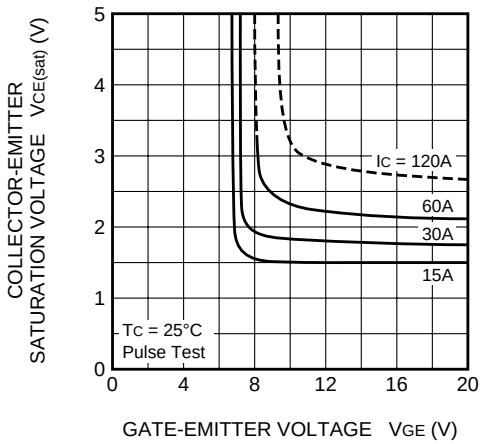
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
$V_{(BR)CES}$	Collector-emitter breakdown voltage	I_C = 1mA, V_{GE} = 0V	900	—	—	V
I_{CES}	Collector-emitter leakage current	V_{CE} = 900V, V_{GE} = 0V	—	—	1	mA
I_{GES}	Gate-emitter leakage current	V_{GE} = ±20V, V_{CE} = 0V	—	—	±0.5	µA
$V_{GE(th)}$	Gate-emitter threshold voltage	V_{CE} = 10V, I_C = 6mA	2.0	4.0	6.0	V
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_C = 60A, V_{CE} = 15V	—	2.0	2.7	V
C_{ies}	Input capacitance	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz	—	5000	—	pF
C_{oes}	Output capacitance		—	125	—	pF
C_{res}	Reverse transfer capacitance		—	85	—	pF
$t_{d(on)}$	Turn-on delay time	I_C = 60A, Resistance load, V_{CC} = 300V, V_{GE} = 15V, R_G = 10Ω	—	0.05	—	µs
t_r	Rise time		—	0.12	—	µs
$t_{d(off)}$	Turn-off delay time		—	0.30	—	µs
t_f	Fall time		—	0.25	—	µs
E_{tail}	Tail loss	I_{CP} = 60A, T_j = 125°C, dv/dt = 200V/µs	—	0.6	1.0	mJ/pls
I_{Ctail}	Collector tail current		—	6	12	A
V_{EC}	Emitter-collector voltage	I_E = 60A, V_{GE} = 0V	—	—	3	V
T_{rr}	Reverse recovery time	I_E = 60A, di/dt = 20A/µs	—	0.5	2	µs
$R_{th(j-c)}$	Thermal resistance (IGBT part)	Junction to case	—	—	0.63	°C/W
$R_{th(j-c)}$	Thermal resistance	Junction to case	—	—	4.0	°C/W

PERFORMANCE CURVES

OUTPUT CHARACTERISTICS (TYPICAL)

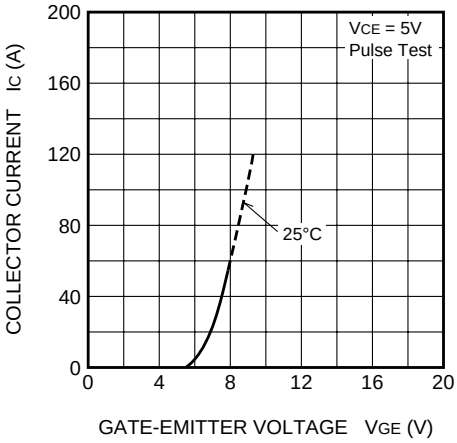


COLLECTOR-EMITTER SATURATION VOLTAGE VS.GATE-EMITTER VOLTAGE (TYPICAL)

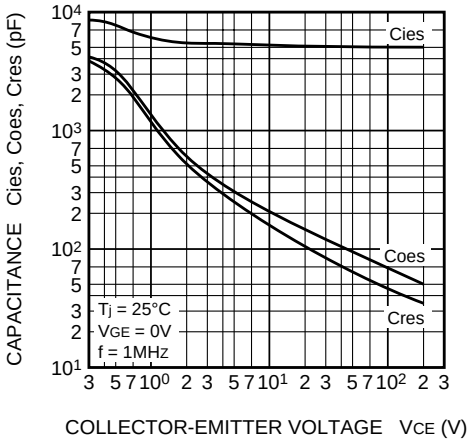


MITSUBISHI ELECTRIC

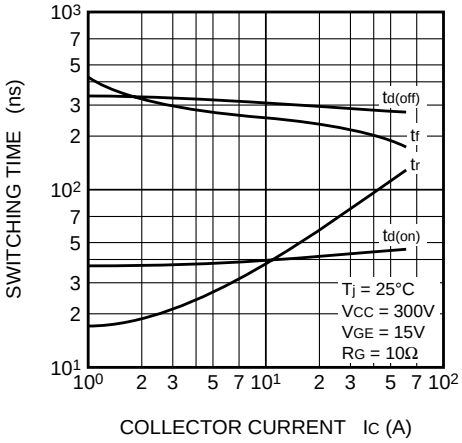
COLLECTOR CURRENT VS. GATE-EMITTER VOLTAGE (TYPICAL)



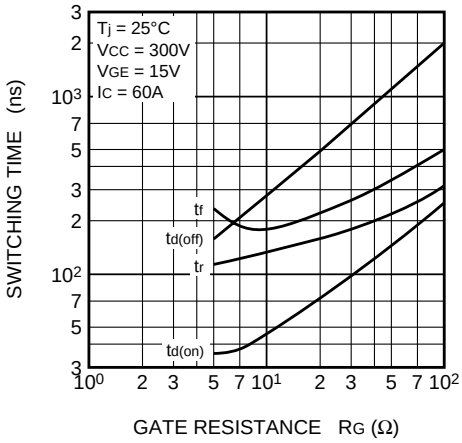
CAPACITANCE VS. COLLECTOR-EMITTER VOLTAGE (TYPICAL)



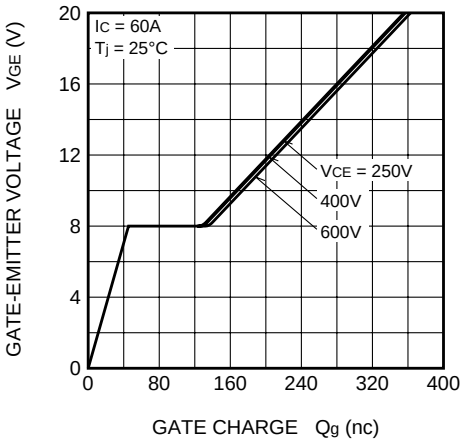
SWITCHING CHARACTERISTICS (TYPICAL)



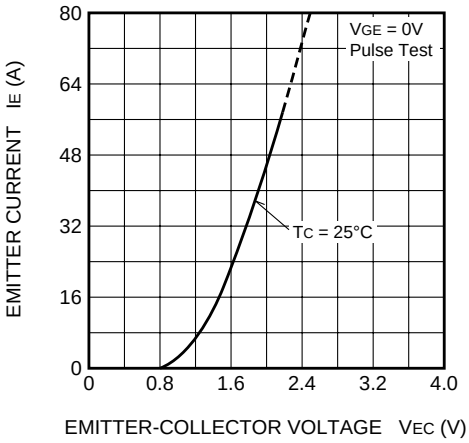
SWITCHING TIME VS.GATE RESISTANCE (TYPICAL)



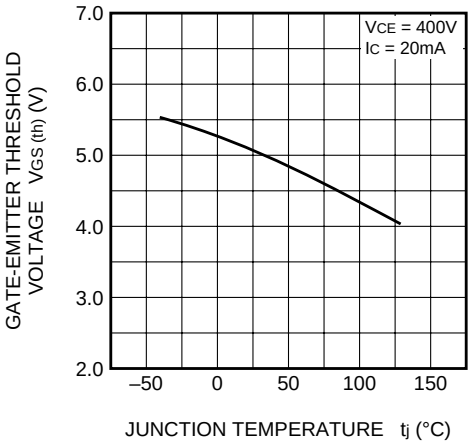
GATE-EMITTER VOLTAGE VS. GATE CHARGE CHARACTERISTIC (TYPICAL)



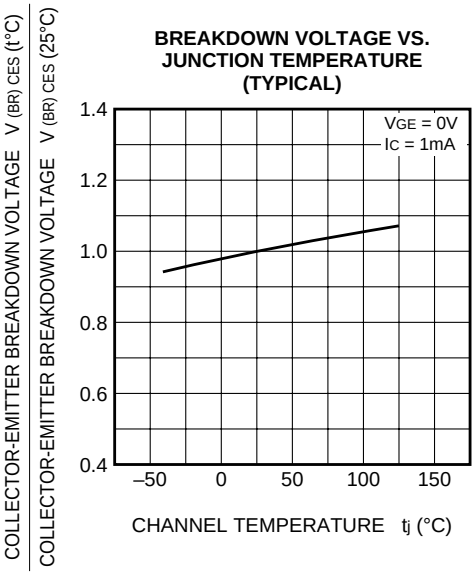
TRANSFER CHARACTERISTICS (TYPICAL)



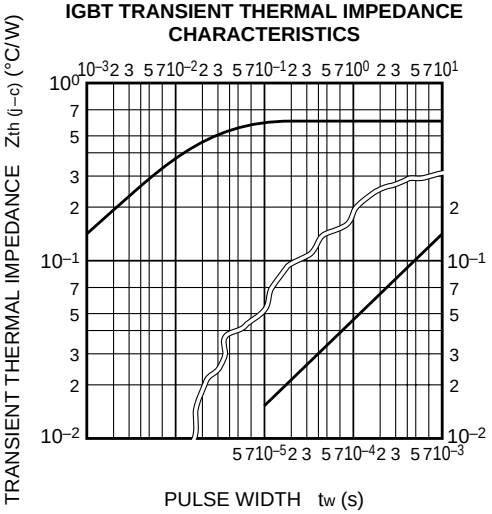
THRESHOLD VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



IGBT TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



DIODE TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS