

To all our customers

Regarding the change of names mentioned in the document, such as Mitsubishi Electric and Mitsubishi XX, to Renesas Technology Corp.

The semiconductor operations of Hitachi and Mitsubishi Electric were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Mitsubishi Electric, Mitsubishi Electric Corporation, Mitsubishi Semiconductors, and other Mitsubishi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

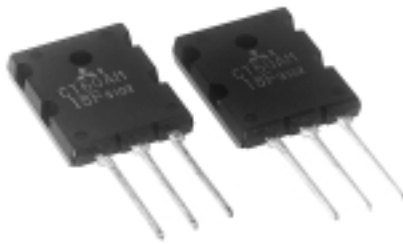
Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.

Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

MITSUBISHI Nch IGBT
CT60AM-18F

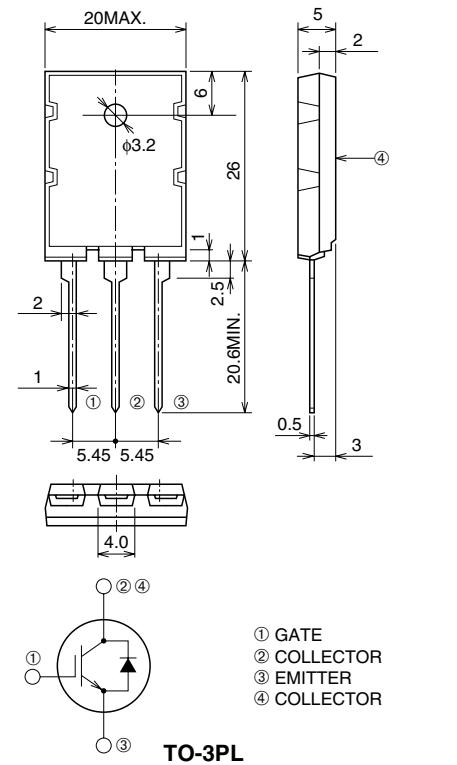
INSULATED GATE BIPOLAR TRANSISTOR

CT60AM-18F



- VCES 900V
- IC 60A
- Integrated Fast-recovery diode
- Small tail loss
- Low VCE(sat)

OUTLINE DRAWING



APPLICATION

Microwave oven, Electromagnetic cooking devices, Rice-cookers

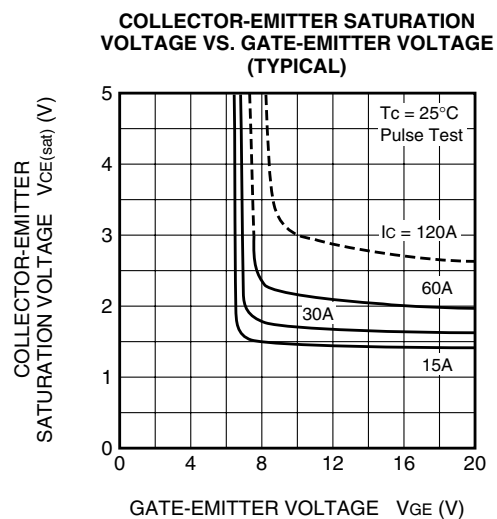
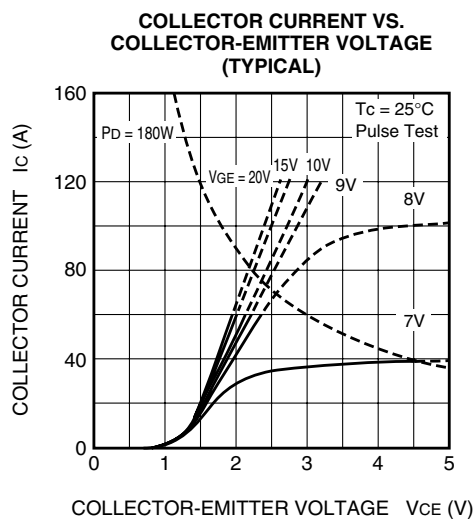
MAXIMUM RATINGS (Tc = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
VCES	Collector-Emitter Voltage	VGE = 0V	900	V
VGES	Gate-Emitter Voltage		±25	V
VGEM	Peak Gate-Emitter Voltage		±30	V
IC	Collector Current		60	A
ICM	Collector Current (Pulse)		120	A
IE	Emitter Current		40	A
PC	Maximum Power Dissipation		180	W
Tj	Junction Temperature		-40 ~ +150	°C
Tstg	Storage Temperature		-40 ~ +150	°C

Sep. 2001

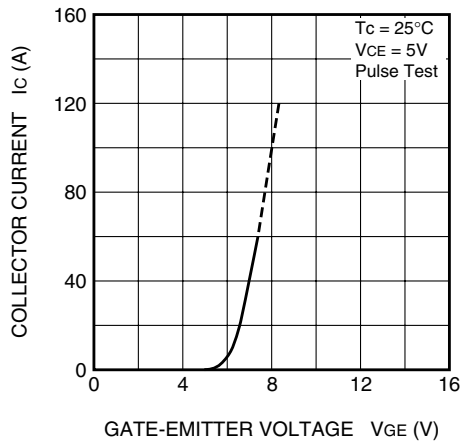
ELECTRICAL CHARACTERISTICS ($T_{ch} = 25^{\circ}\text{C}$)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{CES}	Collector-emitter leakage current	$V_{CE} = 900\text{V}, V_{GE} = 0\text{V}$	—	—	1.0	mA
I_{GES}	Gate-emitter leakage current	$V_{GE} = \pm 20\text{V}, V_{CE} = 0\text{V}$	—	—	0.5	μA
$V_{GE(th)}$	Gate-emitter threshold voltage	$V_{CE} = 10\text{V}, I_C = 6\text{mA}$	2.0	4.0	6.0	V
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C = 60\text{A}, V_{GE} = 15\text{V}$	—	2.1	2.7	V
C_{ies}	Input capacitance	$V_{CE} = 25\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$	—	4400	—	pF
C_{oes}	Output capacitance		—	115	—	pF
C_{res}	Reverse transfer capacitance		—	75	—	pF
$t_{d(on)}$	Turn-on delay time		—	0.05	—	μs
t_r	Turn-on rise time	$V_{CC} = 300\text{V}, I_C = 60\text{A}, V_{GE} = 15\text{V}, R_G = 10\Omega$	—	0.1	—	μs
$t_{d(off)}$	Turn-off delay time		—	0.2	—	μs
t_f	Turn-off fall time		—	0.3	—	μs
E_{tail}	Tail loss	$I_{CP} = 60\text{A}, T_J = 125^{\circ}\text{C}, dv/dt = 200\text{V}/\mu\text{s}$	—	0.6	1.0	mJ/pls
I_{tail}	Tail current		—	6.0	12	A
V_{EC}	Emitter-collector voltage	$I_E = 60\text{A}, V_{GE} = 0\text{V}$	—	2.2	3.0	V
t_{rr}	Diode reverse recovery time	$I_E = 60\text{A}, di/dt = -20\text{A}/\mu\text{s}$	—	0.5	2.0	μs
$R_{th(j-c)}$	Thermal resistance (IGBT)	Junction to case	—	—	0.69	$^{\circ}\text{C}/\text{W}$
$R_{th(j-c)}$	Thermal resistance (Diode)	Junction to case	—	—	4.0	$^{\circ}\text{C}/\text{W}$

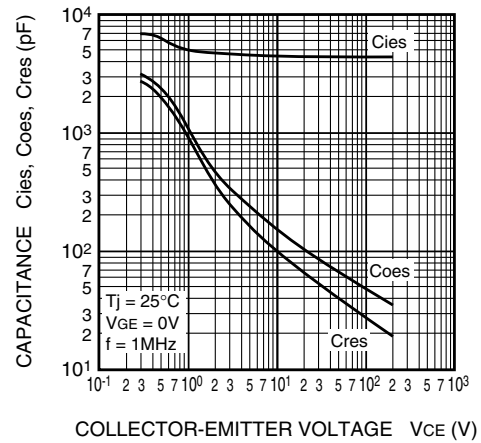
PERFORMANCE CURVES

INSULATED GATE BIPOLAR TRANSISTOR

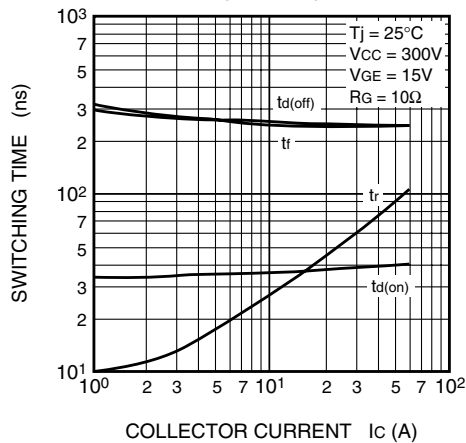
COLLECTOR CURRENT VS.
GATE-EMITTER VOLTAGE
(TYPICAL)



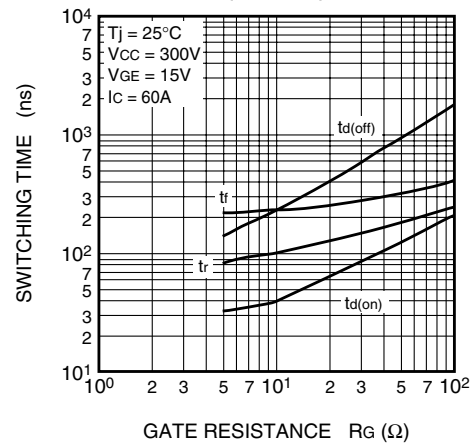
CAPACITANCE VS.
COLLECTOR-EMITTER VOLTAGE
(TYPICAL)



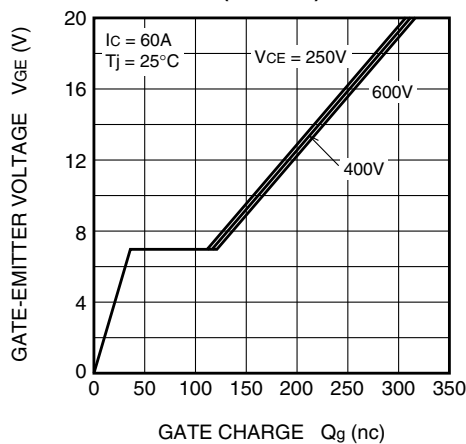
SWITCHING CHARACTERISTICS
(TYPICAL)



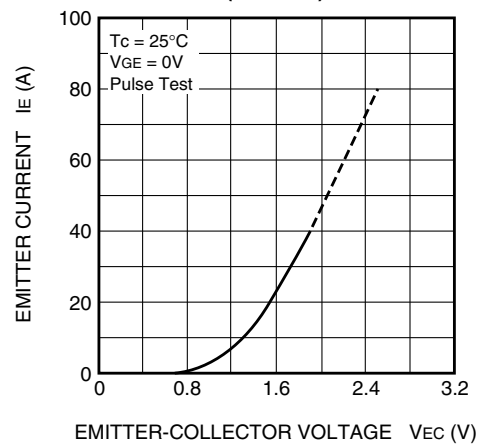
SWITCHING TIME VS. GATE RESISTANCE
(TYPICAL)



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



EMITTER CURRENT VS.
EMITTER-COLLECTOR VOLTAGE
(TYPICAL)



INSULATED GATE BIPOLAR TRANSISTOR

