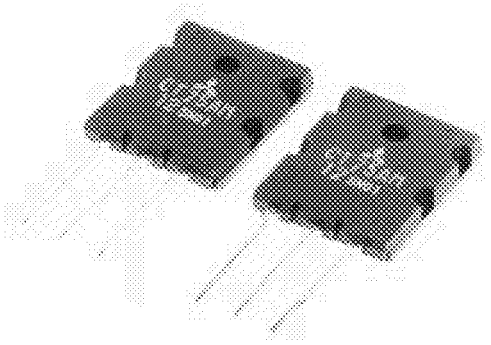
MITSUBISHI INSULATED GATE BIPOLAR TRANSISTOR

CT75AM-12

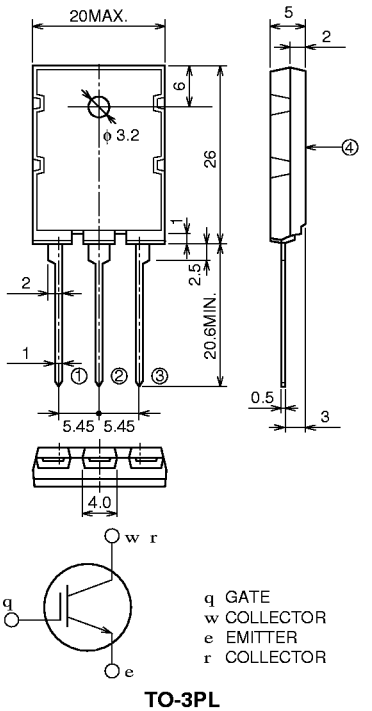
GENERAL INVERTER • UPS USE

CT75AM-12



- V_{CES} 600V
- Ic 75A
- High Speed Switching
- Low V_{CE} Saturation Voltage

OUTLINE DRAWING Dimensions in mm



TO-3PL

APPLICATION

AC & DC motor controls, General purpose inverters, UPS, Power supply switching, Servo controls, etc.

MAXIMUM RATINGS (T_C = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CES}	Collector-emitter voltage	V_{GE} = 0V	600	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		75	A
I_{CM}	Collector current (Pulsed)		150	A
P_C	Maximum power dissipation		300	W
T_j	Junction temperature		–40 ~ +150	°C
T_{stg}	Storage temperature		–40 ~ +150	°C
—	Weight	Typical value	9.8	g

Feb.1999

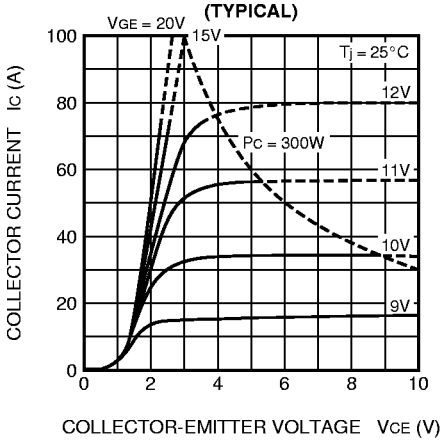
MITSUBISHI ELECTRIC

ELECTRICAL CHARACTERISTICS (T_j = 25°C)

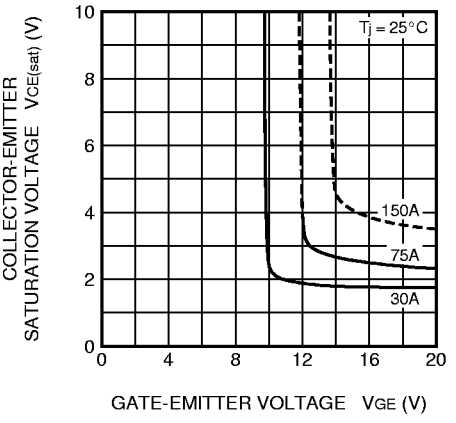
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
$V_{(BR)CES}$	Collector-emitter breakdown voltage	I_C = 1mA, V_{GE} = 0V	600	—	—	V
I_{GES}	Collector-emitter leakage current	V_{GE} = ±30V, V_{CE} = 0V	—	—	±0.5	µA
I_{CES}	Gate-emitter leakage current	V_{CE} = 600V, V_{GE} = 0V	—	—	1	mA
$V_{GE(th)}$	Gate-emitter threshold voltage	I_C = 7.5mA, V_{CE} = 10V	4.5	6.0	7.5	V
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_C = 75A, V_{GE} = 15V	—	2.5	3.0	V
C_{ies}	Input capacitance	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz	—	3100	—	pF
C_{oes}	Output capacitance		—	400	—	pF
C_{res}	Reverse transfer capacitance		—	130	—	pF
$t_{d(on)}$	Turn-on delay time	V_{CC} = 300V, Resistance load, I_C = 75A, V_{GE} = 15V, R_{GE} = 10Ω	—	40	—	ns
t_r	Rise time		—	265	—	ns
$t_{d(off)}$	Turn-off delay time		—	175	—	ns
t_f	Fall time		—	245	—	ns
$R_{th(j-c)}$	Thermal resistance	Junction to case	—	—	0.42	°C/W

PERFORMANCE CURVES

OUTPUT CHARACTERISTICS (TYPICAL)



COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



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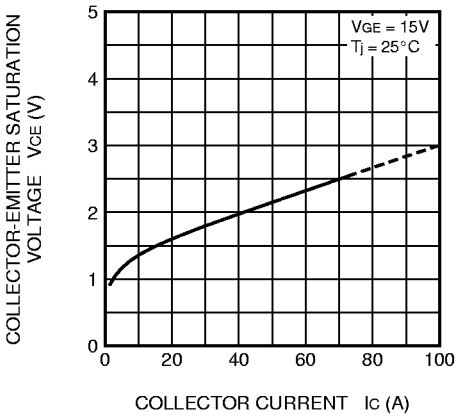
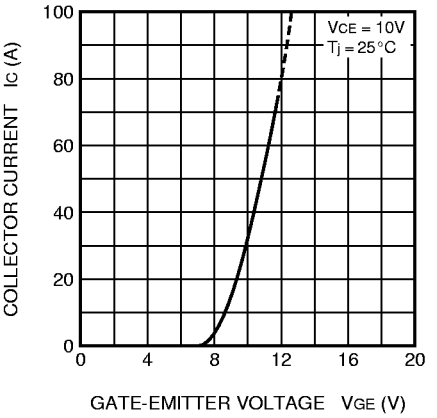
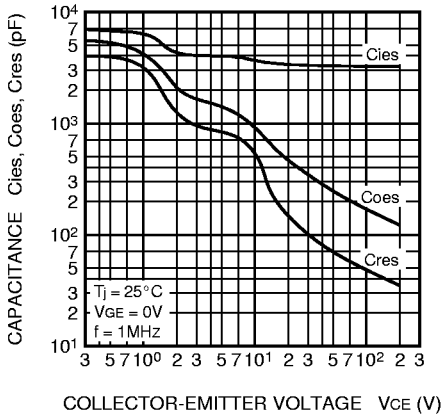


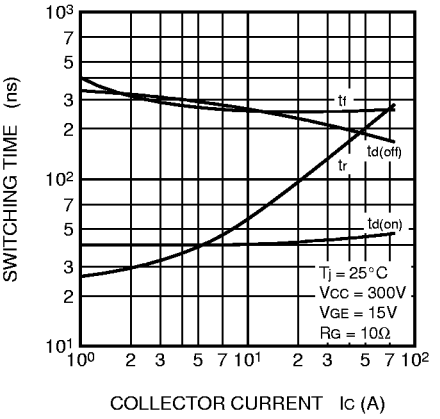
COLLECTOR CURRENT VS. GATE EMITTER VOLTAGE CHARACTERISTIC (TYPICAL)



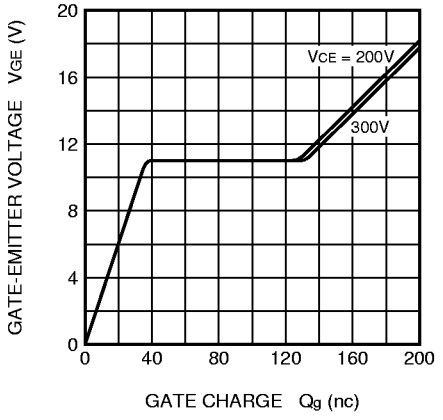
CAPACITANCE VS. COLLECTOR-EMITTER VOLTAGE CHARACTERISTIC (TYPICAL)



SWITCHING TIME-COLLECTOR CURRENT CHARACTERISTIC (TYPICAL)



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



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (TYPICAL)