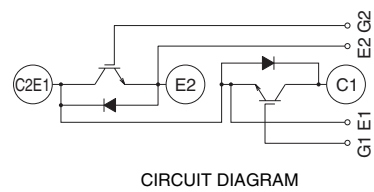
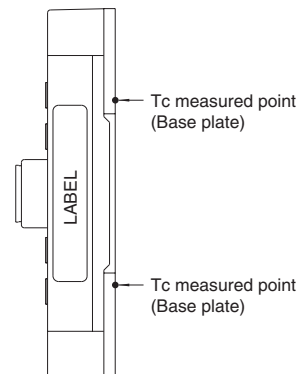
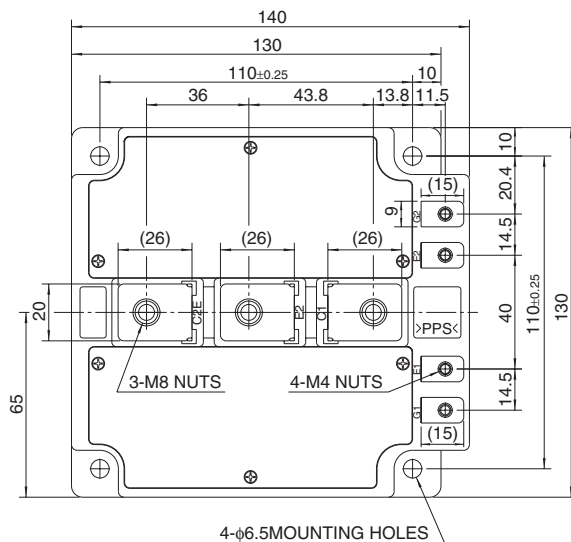


HIGH POWER SWITCHING USE

A black, rectangular, ruggedized electronic component, likely a power supply or converter, with multiple mounting holes and a label. The component has a robust, industrial design with a black plastic or metal housing. It features several circular mounting holes along its edges and a central slot. A white label is visible on the bottom right corner, containing the text "A8888888".

- ## General purpose inverters & Servo controls, etc

Dimensions in mm



CM600DU-24NF

HIGH POWER SWITCHING USE

MAXIMUM RATINGS (Tj = 25°C, unless otherwise specified)

Symbol	Parameter	Conditions	Rating	Unit
VCES	Collector-emitter voltage	G-E Short	1200	V
VGES	Gate-emitter voltage	C-E Short	±20	V
IC	Collector current	DC, Tc' = 109°C ^{*3}	600	A
ICM		Pulse (Note 2)	1200	A
IE (Note 1)	Emitter current		600	A
IEM (Note 1)		Pulse (Note 2)	1200	A
PC (Note 3)	Total power dissipation	Tc = 25°C	2080	W
Tj	Junction temperature		−40 ~ +150	°C
Tstg	Storage temperature		−40 ~ +125	°C
Visol	Isolation voltage	Terminals to base plate, f = 60Hz, AC 1 minute, RMS	2500	V
—	Mounting torque	Main terminals M8 screw	8.8 ~ 10.8	N • m
—		Mounting to heat sink M6 screw	3.5 ~ 4.5	N • m
—		G(E) Terminal M4 screw	1.3 ~ 1.7	N • m
	Weight	Typical value	1200	g

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Parameter	Conditions	Limits			Unit
			Min.	Typ.	Max.	
ICES	Collector-emitter cut-off current	VCE = VCES, G-E short	—	—	1	mA
VGE(th)	Gate-emitter threshold voltage	IC = 60mA, VCE = 10V	6	7	8	V
IGES	Gate-emitter leakage current	±VGE = VGES, C-E short	—	—	0.5	μA
VCEsat	Collector-emitter saturation voltage	IC = 600A, VGE = 15V	—	Tj = 25°C 1.95	2.65	V
				Tj = 125°C 2.15	—	
Cies	Input capacitance	VCE = 10V G-E short	—	—	140	nF
Coēs	Output capacitance		—	—	12	nF
Cres	Reverse transfer capacitance		—	—	2.7	nF
QG	Gate charge	VCC = 600V, IC = 600A, VGE = 15V	—	4000	—	nC
td(on)	Turn-on delay time	VCC = 600V, IC = 600A VGE = ±15V RG = 1.0Ω, Inductive load IE = 600A	—	—	800	ns
tr	Rise time		—	—	180	ns
td(off)	Turn-off delay time		—	—	900	ns
tf	Fall time		—	—	350	ns
trr (Note 1)	Reverse recovery time		—	—	300	ns
Qrr (Note 1)	Reverse recovery charge		—	28	—	μC
VEC(Note 1)	Emitter-collector voltage	IE = 600A, G-E short	—	—	3.35	V
Rth(j-c)Q	Thermal resistance ^{*1}	IGBT part (1/2 module)	—	—	0.06	K/W
Rth(j-c)R		FWDi part (1/2 module)	—	—	0.11	K/W
Rth(c-f)	Contact thermal resistance	Case to heat sink, Thermal compound Applied ^{*2} (1/2 module)	—	0.019	—	K/W
Rth(j-c')Q	Thermal resistance	Case temperature measured point is just under the chips	—	—	0.023 ^{*3}	K/W
RG	External gate resistance		1.0	—	10	Ω

*1 : Case temperature (Tc) measured point is shown in page OUTLINE DRAWING.

*2 : Typical value is measured by using thermally conductive grease of λ = 0.9[W/(m • K)].

*3 : Case temperature (Tc') measured point is just under the chips.

If you use this value, Rth(f-a) should be measured just under the chips.

Note 1. IE, VEC, trr & Qrr represent characteristics of the anti-parallel, emitter-collector free-wheel diode (FWDi).

2. Pulse width and repetition rate should be such that the device junction temperature (Tj) does not exceed Tjmax rating.

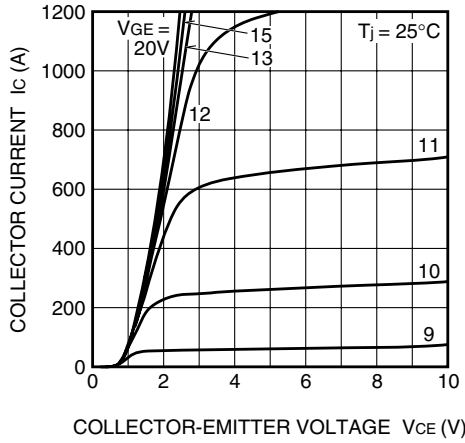
3. Junction temperature (Tj) should not increase beyond 150°C.

CM600DU-24NF

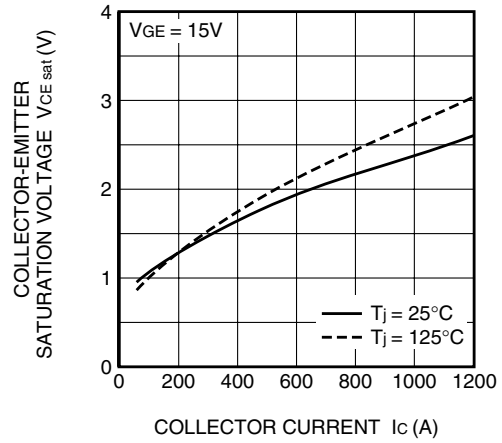
HIGH POWER SWITCHING USE

PERFORMANCE CURVES

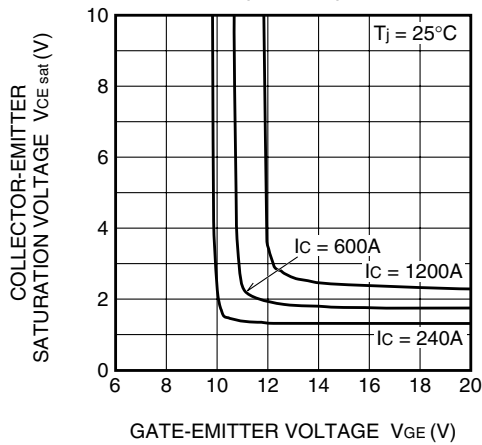
OUTPUT CHARACTERISTICS (TYPICAL)



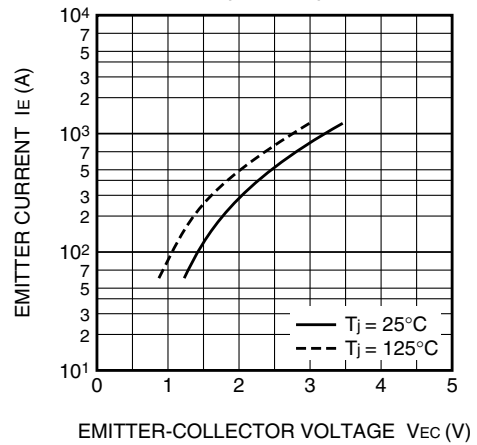
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



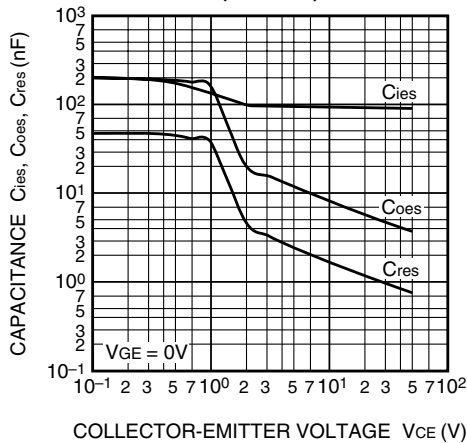
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



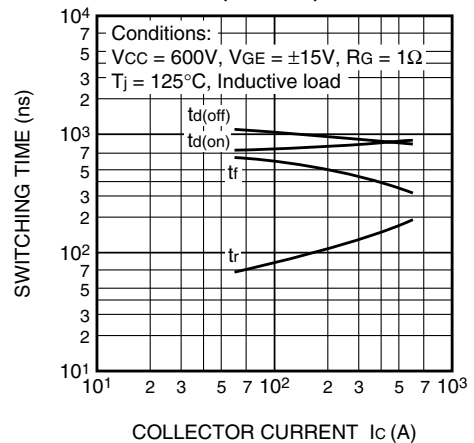
FREE-WHEEL DIODE FORWARD CHARACTERISTICS (TYPICAL)



CAPACITANCE- V_{CE} CHARACTERISTICS (TYPICAL)



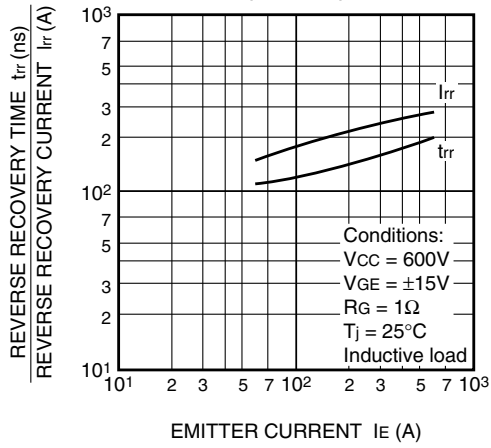
HALF-BRIDGE SWITCHING CHARACTERISTICS (TYPICAL)



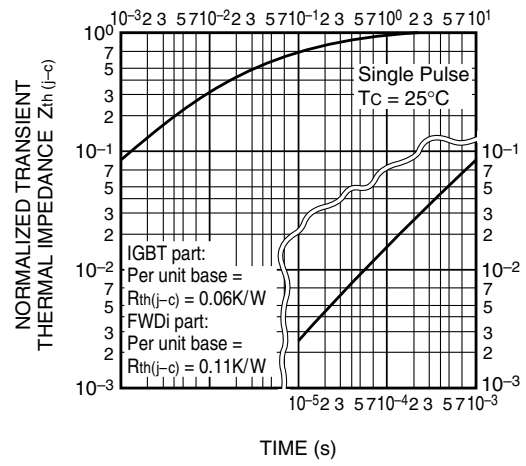
CM600DU-24NF

HIGH POWER SWITCHING USE

**REVERSE RECOVERY CHARACTERISTICS
OF FREE-WHEEL DIODE
(TYPICAL)**



**TRANSIENT THERMAL
IMPEDANCE CHARACTERISTICS
(IGBT part & FWDi part)**



**GATE CHARGE
CHARACTERISTICS
(TYPICAL)**

