

MITSUBISHI HVIGBT MODULES
CM800DZ-34H

3rd-Version HVIGBT (High Voltage Insulated Gate Bipolar Transistor) Modules

HIGH POWER SWITCHING USE
INSULATED TYPE

CM800DZ-34H



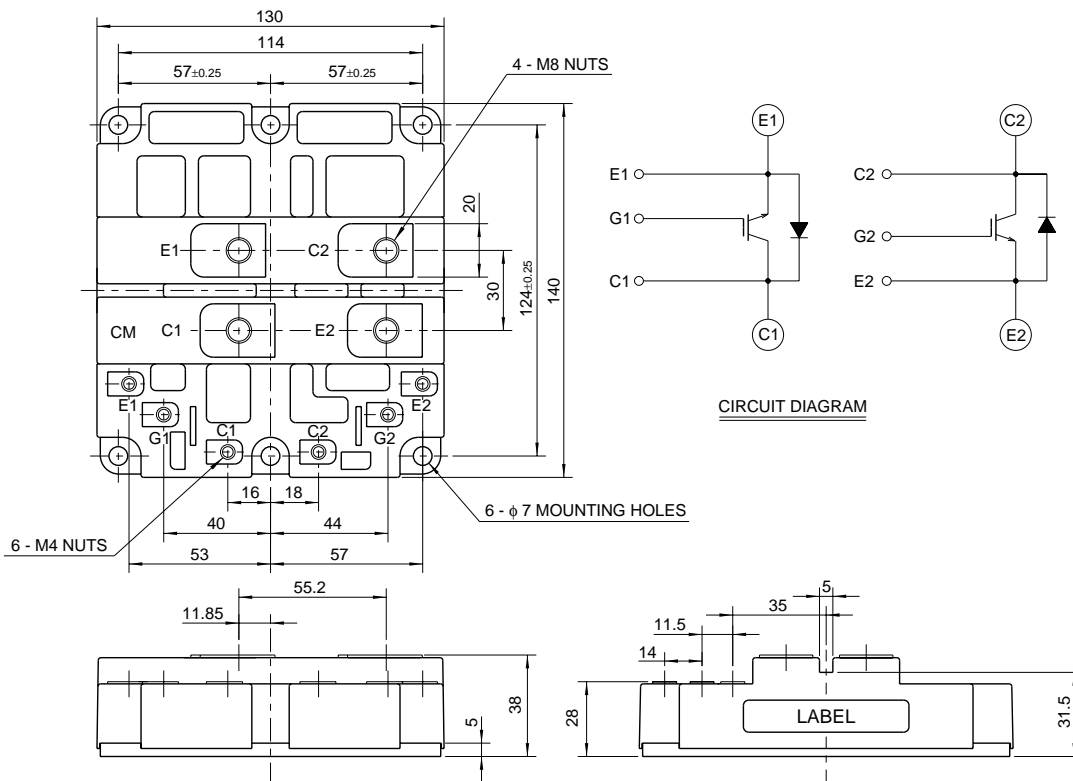
- Ic800A
- VCES 1700V
- Insulated Type
- 2-elements in a pack

APPLICATION

Inverters, Converters, DC choppers, Induction heating, DC to DC converters.

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



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Oct. 2002



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MAXIMUM RATINGS (Tj = 25°C)

Symbol	Item	Conditions	Ratings	Unit
VCES	Collector-emitter voltage	VGE = 0V	1700	V
VGES	Gate-emitter voltage	VCE = 0V	±20	V
IC	Collector current	TC = 25°C	800	A
ICM		Pulse (Note 1)	1600	A
IE (Note 2)	Emitter current	TC = 25°C	800	A
IEM (Note 2)		Pulse (Note 1)	1600	A
PC (Note 3)	Maximum collector dissipation	TC = 25°C, IGBT part	5000	W
Tj	Junction temperature	—	-40 ~ +150	°C
Tstg	Storage temperature	—	-40 ~ +125	°C
Viso	Isolation voltage	Charged part to base plate, rms, sinusoidal, AC 60Hz 1min.	4000	V
—	Mounting torque	Main terminals screw M8	6.67 ~ 13.00	N·m
		Mounting screw M6	2.84 ~ 6.00	N·m
		Auxiliary terminals screw M4	0.88 ~ 2.00	N·m
—	Mass	Typical value	1.0	kg

ELECTRICAL CHARACTERISTICS (Tj = 25°C)

Symbol	Item	Conditions	Limits			Unit
			Min	Typ	Max	
ICES	Collector cutoff current	VCE = VCES, VGE = 0V	—	—	12	mA
VGE(th)	Gate-emitter threshold voltage	IC = 80mA, VCE = 10V	4.5	5.5	6.5	V
IGES	Gate-leakage current	VGE = VGES, VCE = 0V	—	—	0.5	µA
VCE(sat)	Collector-emitter saturation voltage	Tj = 25°C	—	2.80	3.64	V
		Tj = 125°C	—	3.20	—	
Cies	Input capacitance	VCE = 10V VGE = 0V	—	72	—	nF
Coes	Output capacitance		—	9.0	—	nF
Cres	Reverse transfer capacitance		—	3.6	—	nF
QG	Total gate charge	VCC = 850V, IC = 800A, VGE = 15V	—	6.6	—	µC
td (on)	Turn-on delay time	VCC = 850V, IC = 800A	—	—	1.60	µs
tr	Turn-on rise time	VGE1 = VGE2 = 15V	—	—	2.00	µs
td (off)	Turn-off delay time	RG = 3.3Ω	—	—	2.70	µs
tf	Turn-off fall time	Resistive load switching operation	—	—	0.80	µs
VEC (Note 2)	Emitter-collector voltage	IE = 800A, VGE = 0V	—	2.60	3.38	V
ttr (Note 2)	Reverse recovery time	IE = 800A	—	—	2.70	µs
Qrr (Note 3)	Reverse recovery charge	die / dt = -1600A / µs	—	150	—	µC
Rth(j-c)Q	Thermal resistance	Junction to case, IGBT part (Per 1/2 module)	—	—	0.025	K/W
Rth(j-c)R		Junction to case, FWDI part (Per 1/2 module)	—	—	0.043	K/W
Rth(c-f)	Contact thermal resistance	Case to fin, conductive grease applied (Per 1/2 module)	—	0.020	—	K/W

- Note 1. Pulse width and repetition rate should be such that the device junction temp. (Tj) does not exceed Tjmax rating.
 2. IE, VEC, ttr, Qrr & die/dt represent characteristics of the anti-parallel, emitter to collector free-wheel diode.
 3. Junction temperature (Tj) should not increase beyond 150°C.
 4. Pulse width and repetition rate should be such as to cause negligible temperature rise.



SECURITY CODE		MITSUBISHI ELECTRIC CORPORATION						
SPEC.NAME Application Note	Prepared by	S.Iura	R E V	A	S.Iura			
	Checked by	M.Yamamoto			I.Umesaki			
	Approved by	M.Yamamoto			M.Tabata			
	DATE	Apr.8.2002			Aug.2.2002			

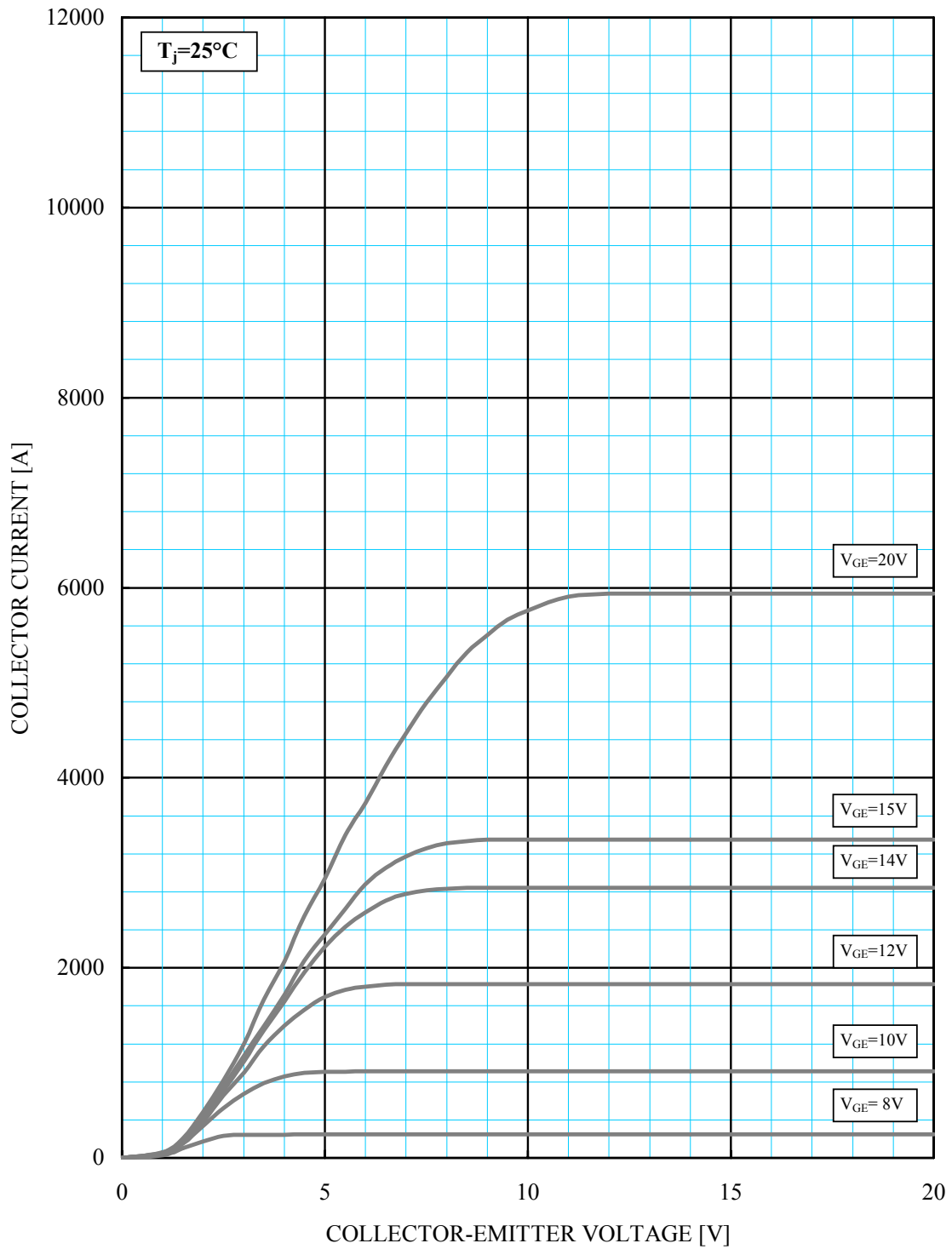
Data Sheet

(CM800DZ-34H)

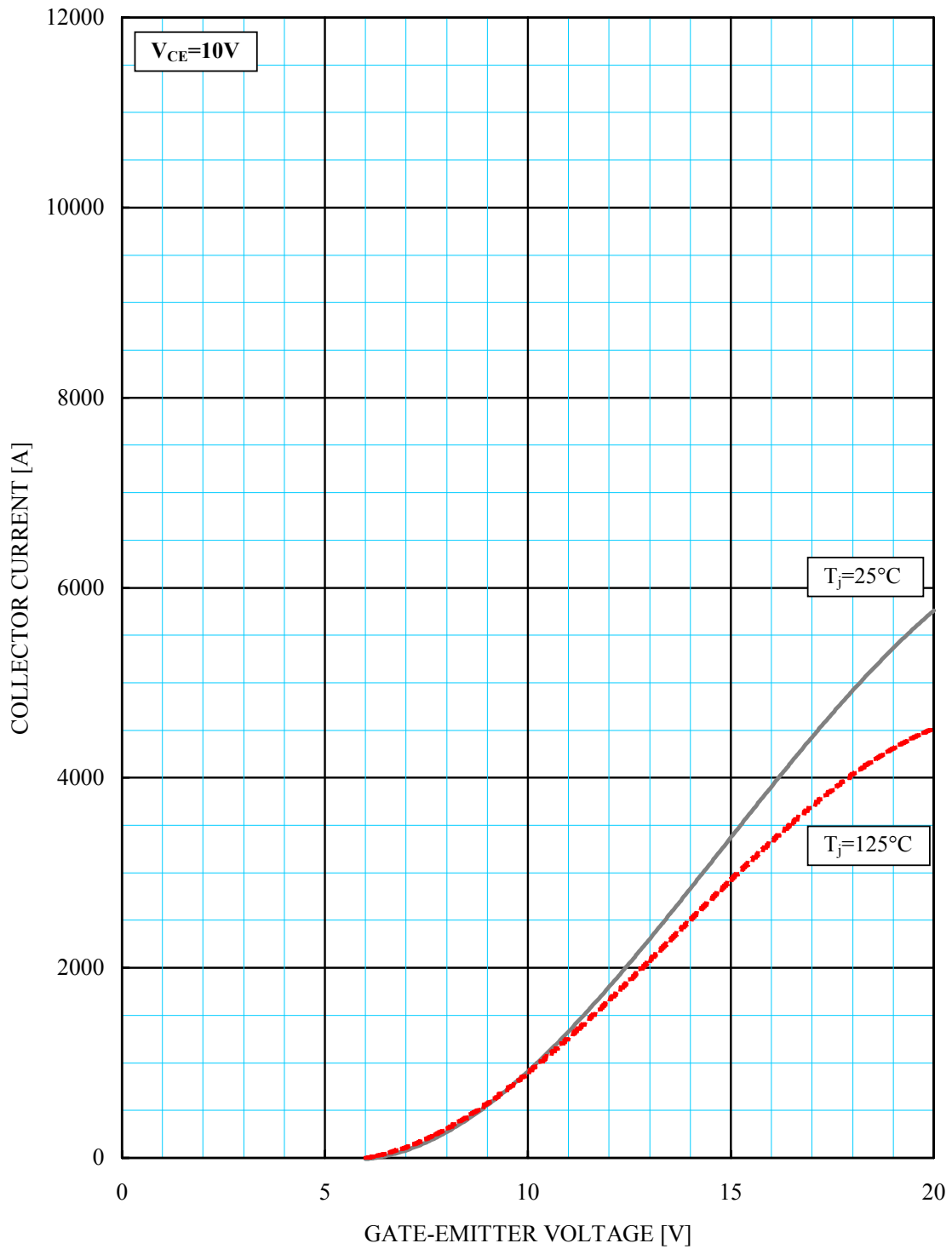
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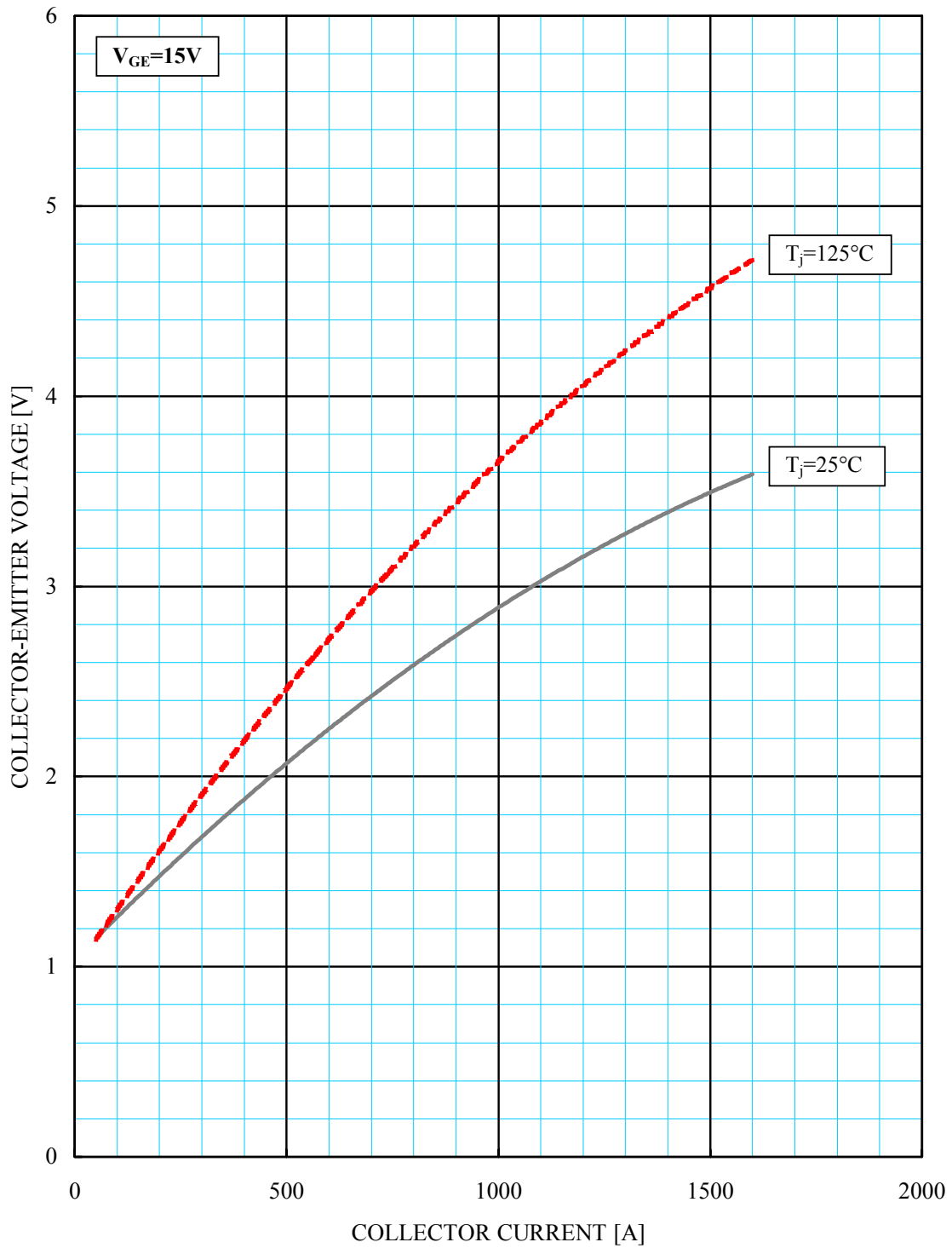


Output characteristics (typical)



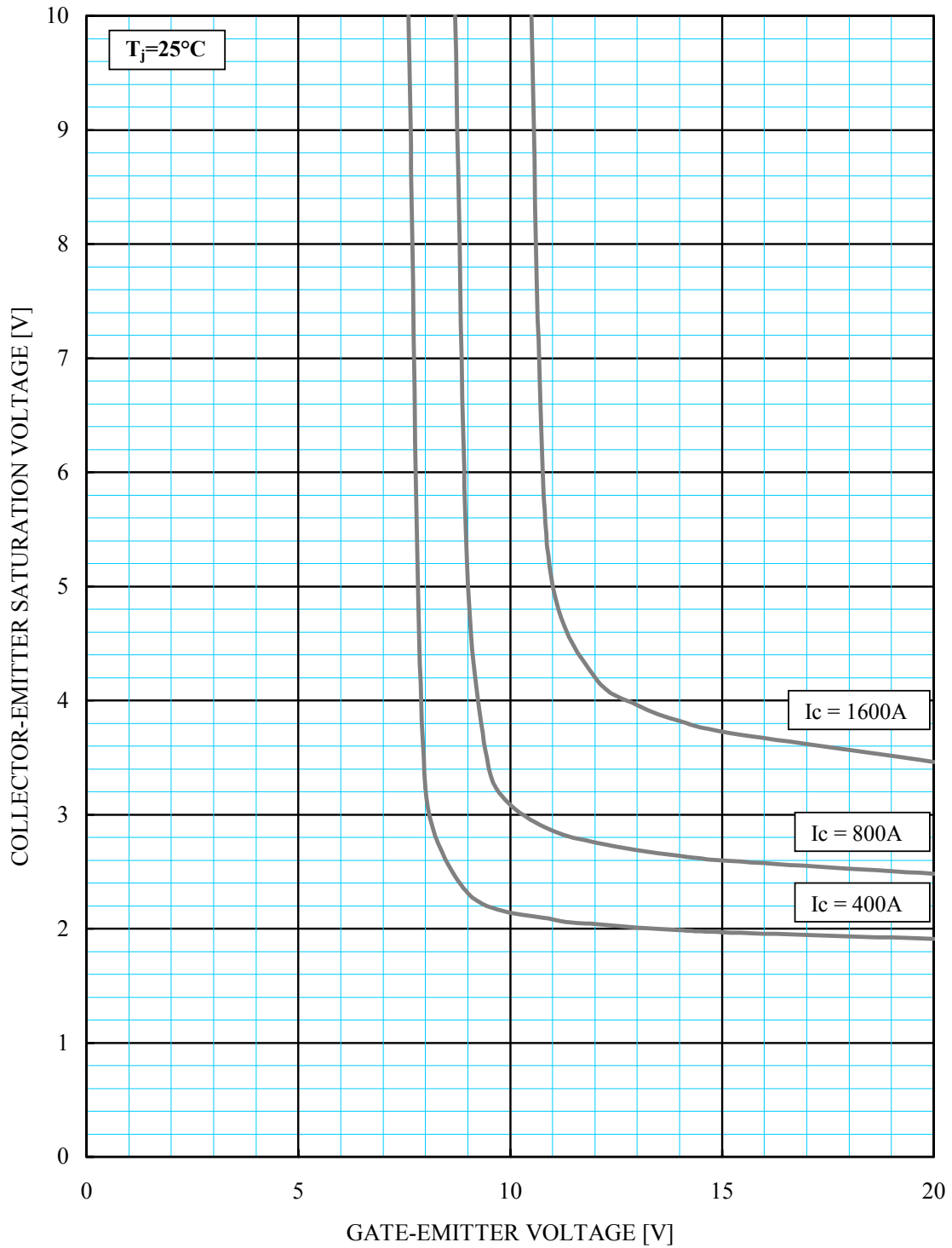
Transfer characteristics (typical)

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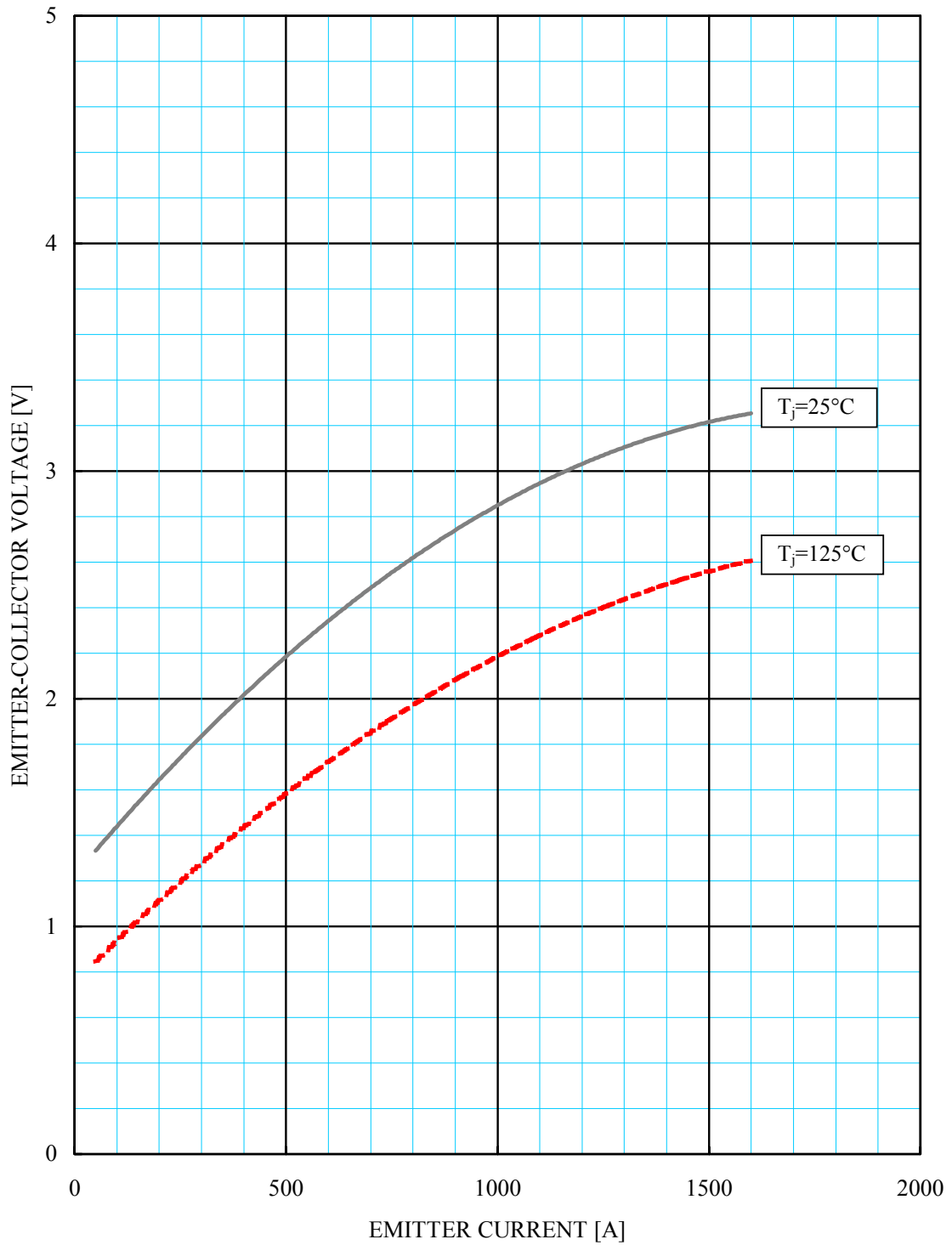


Collector-emitter saturation voltage characteristics (typical)

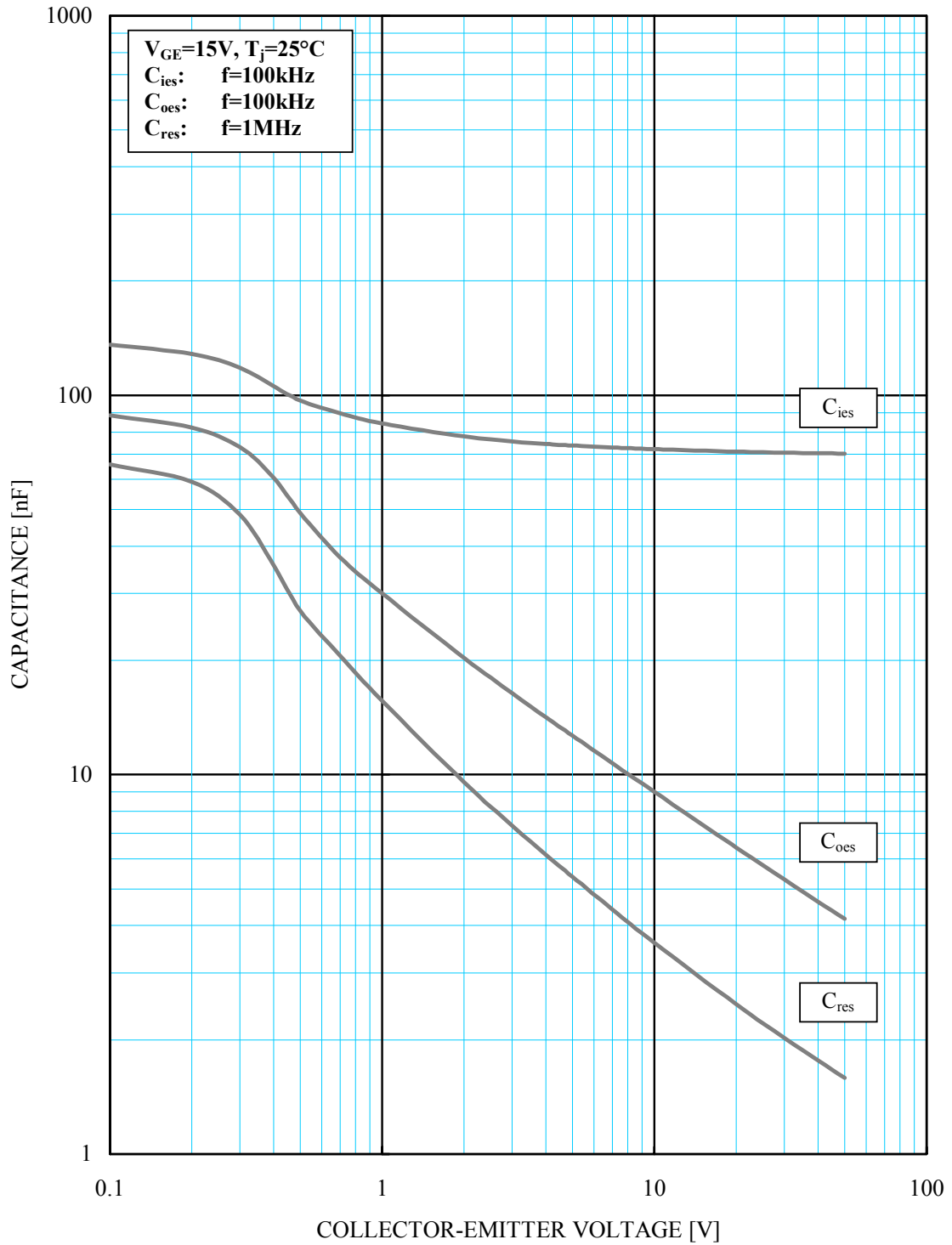
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Collector-emitter saturation voltage characteristics (typical)

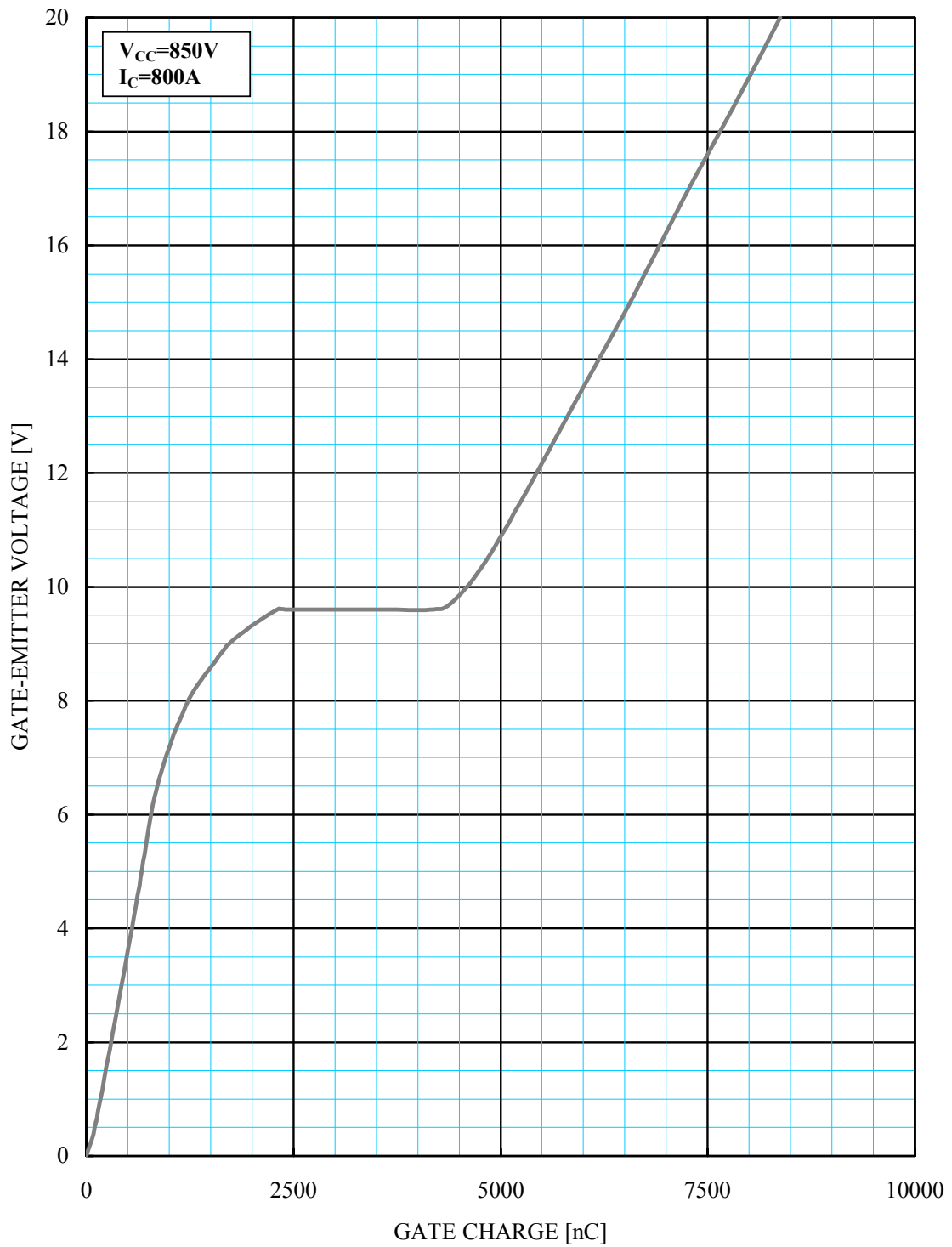


Free wheel diode forward voltage characteristics (typical)



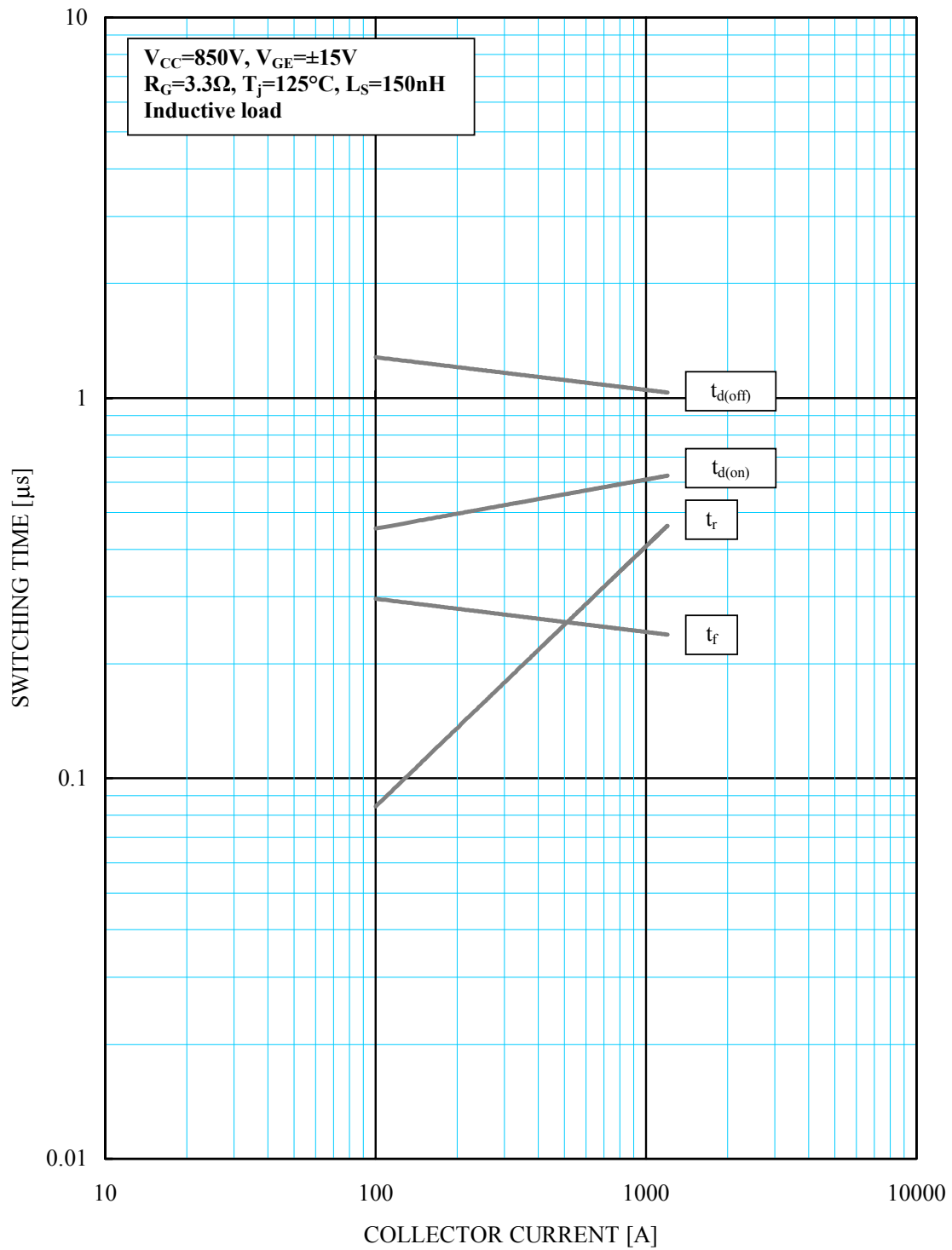
Capacitance characteristics (typical)

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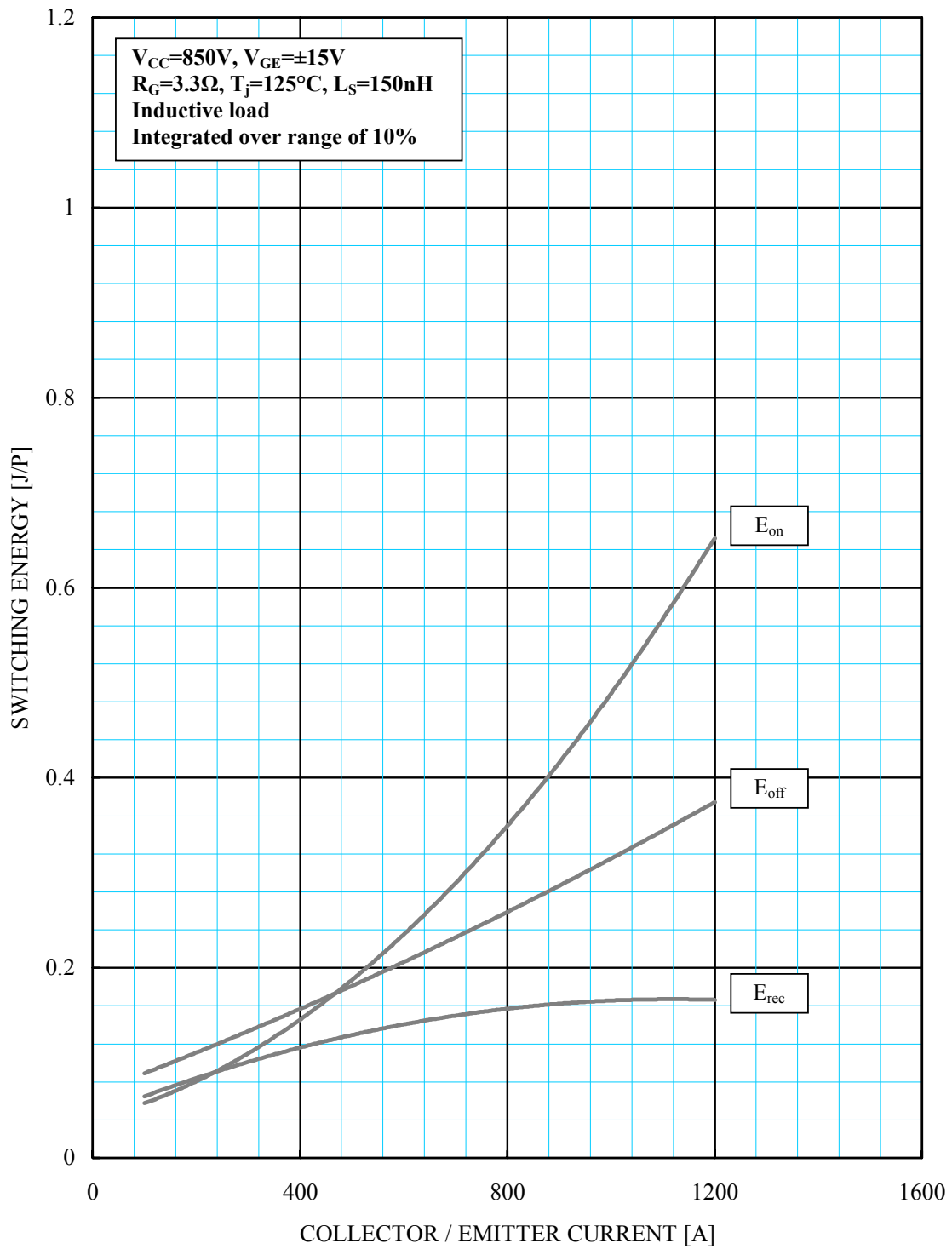


Gate charge characteristics (typical)

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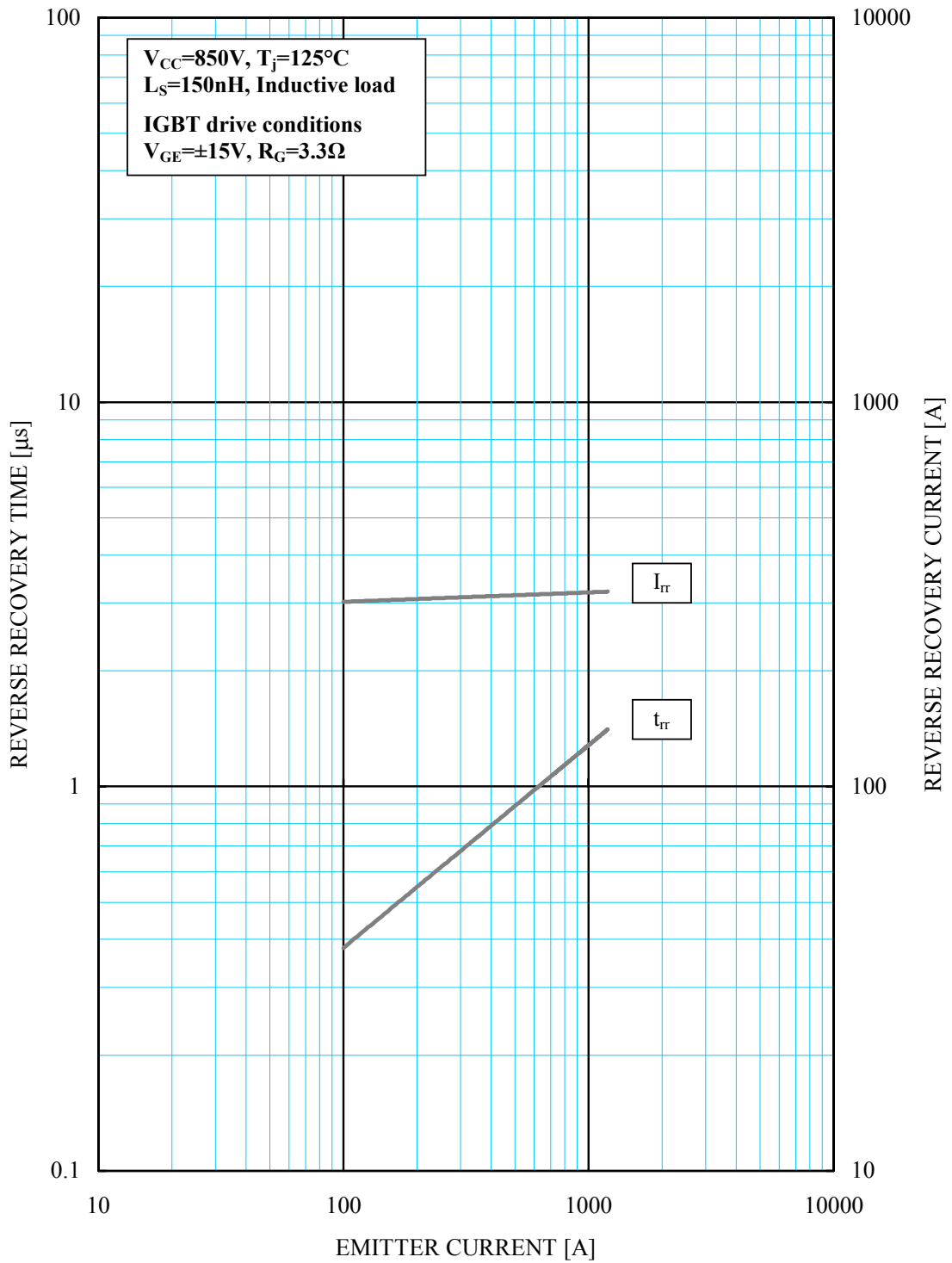


Half-bridge switching time characteristics (typical)

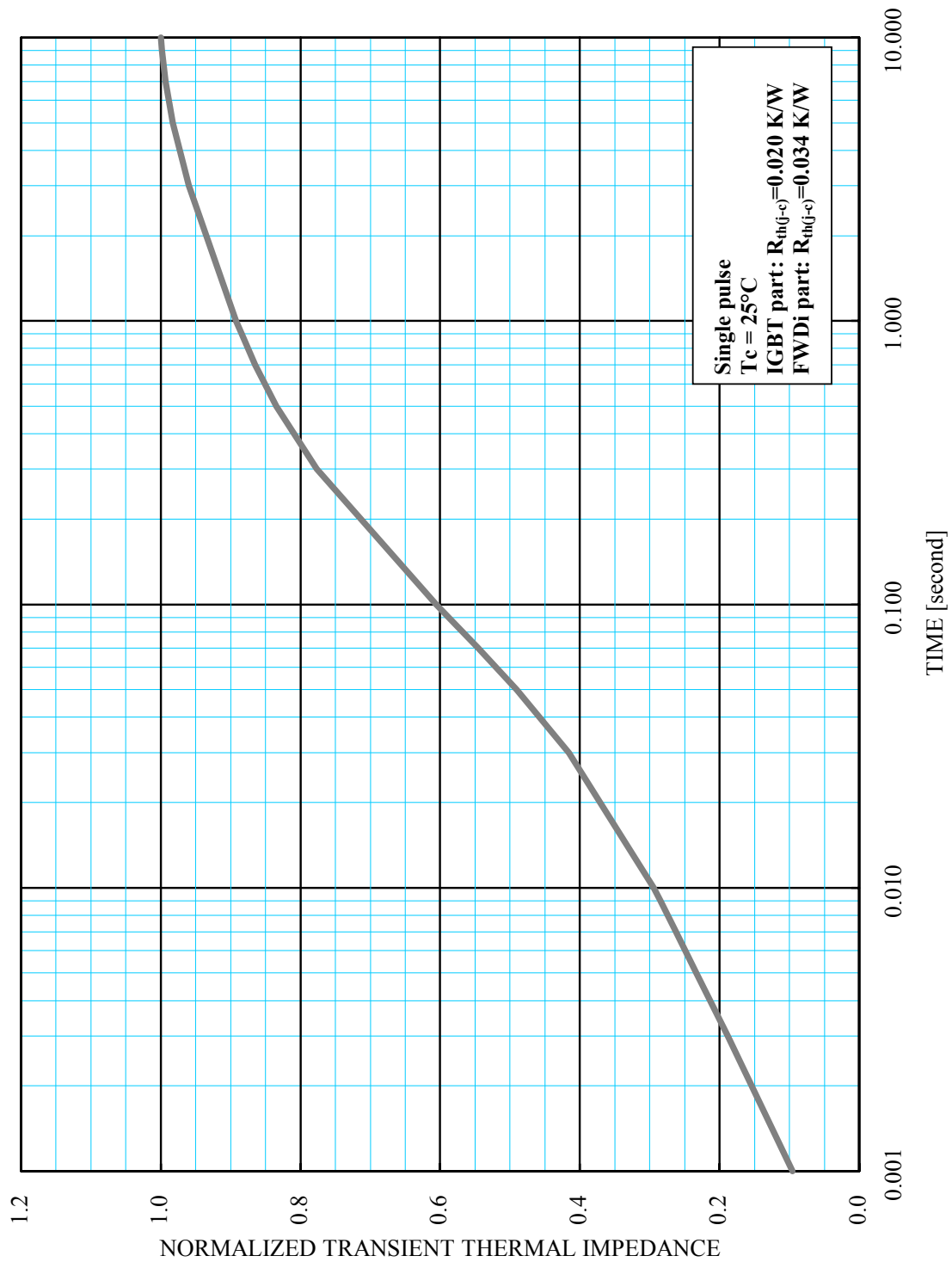


Half-bridge switching energy characteristics (typical)

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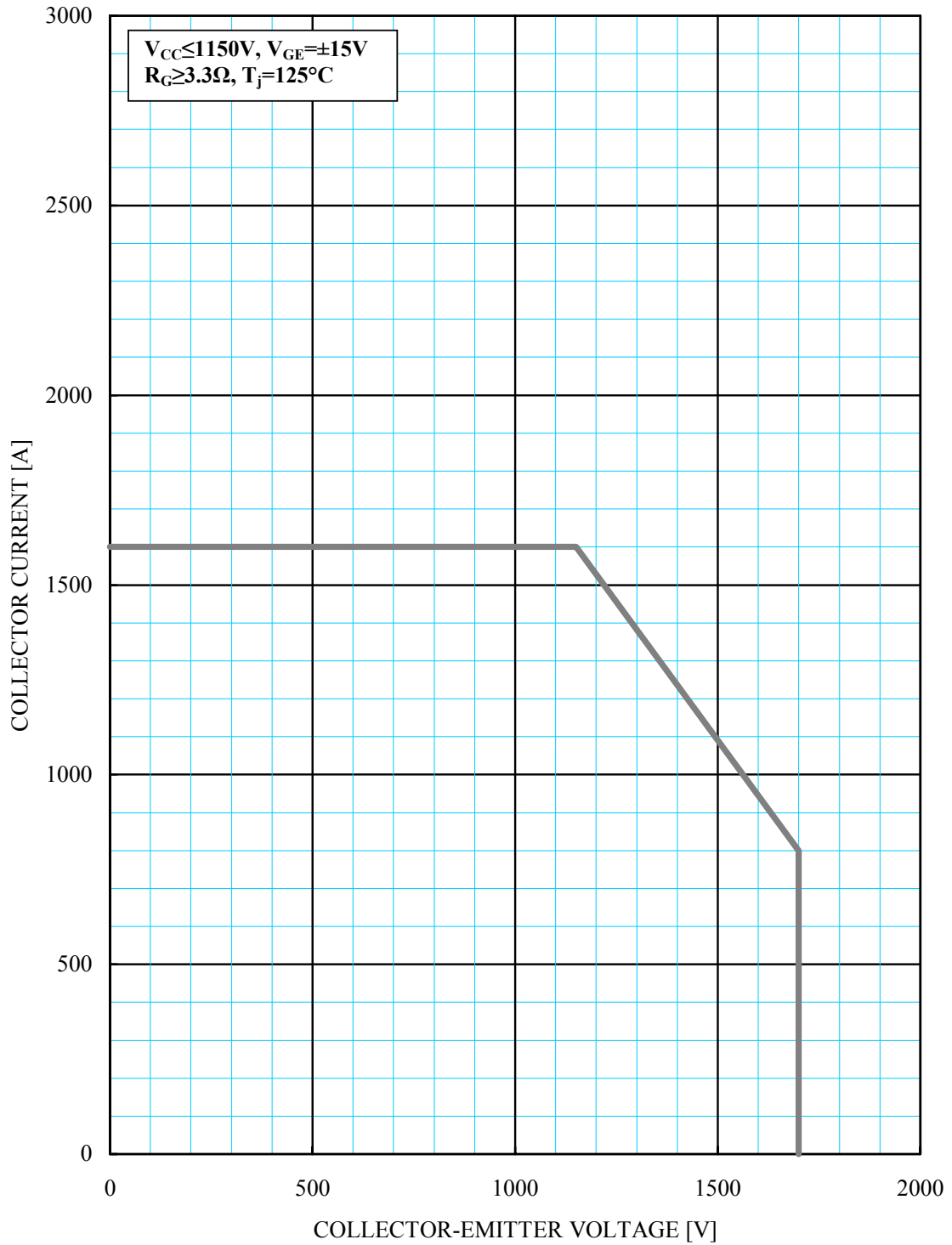


Reverse recovery characteristics (typical)



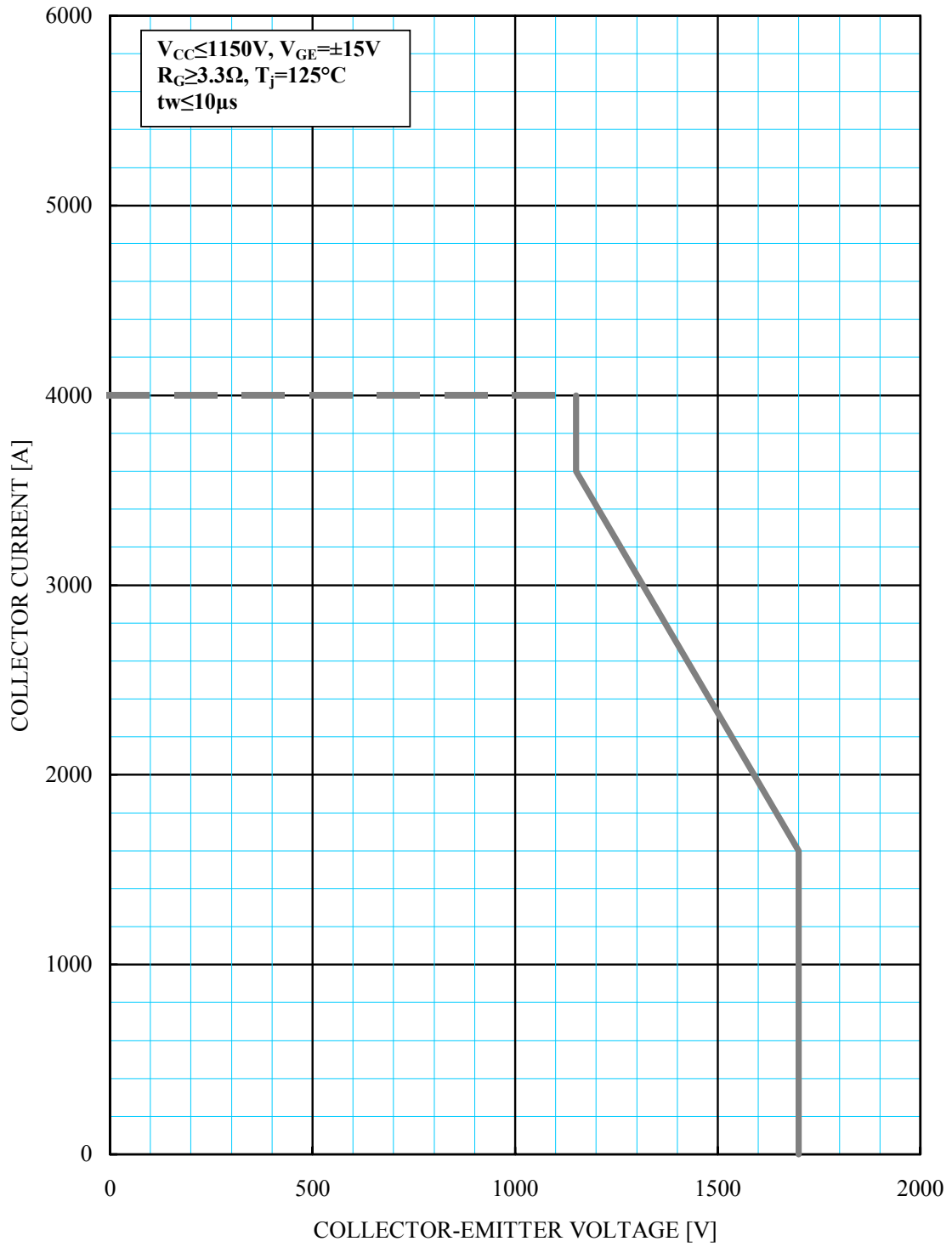
Transient thermal impedance characteristics

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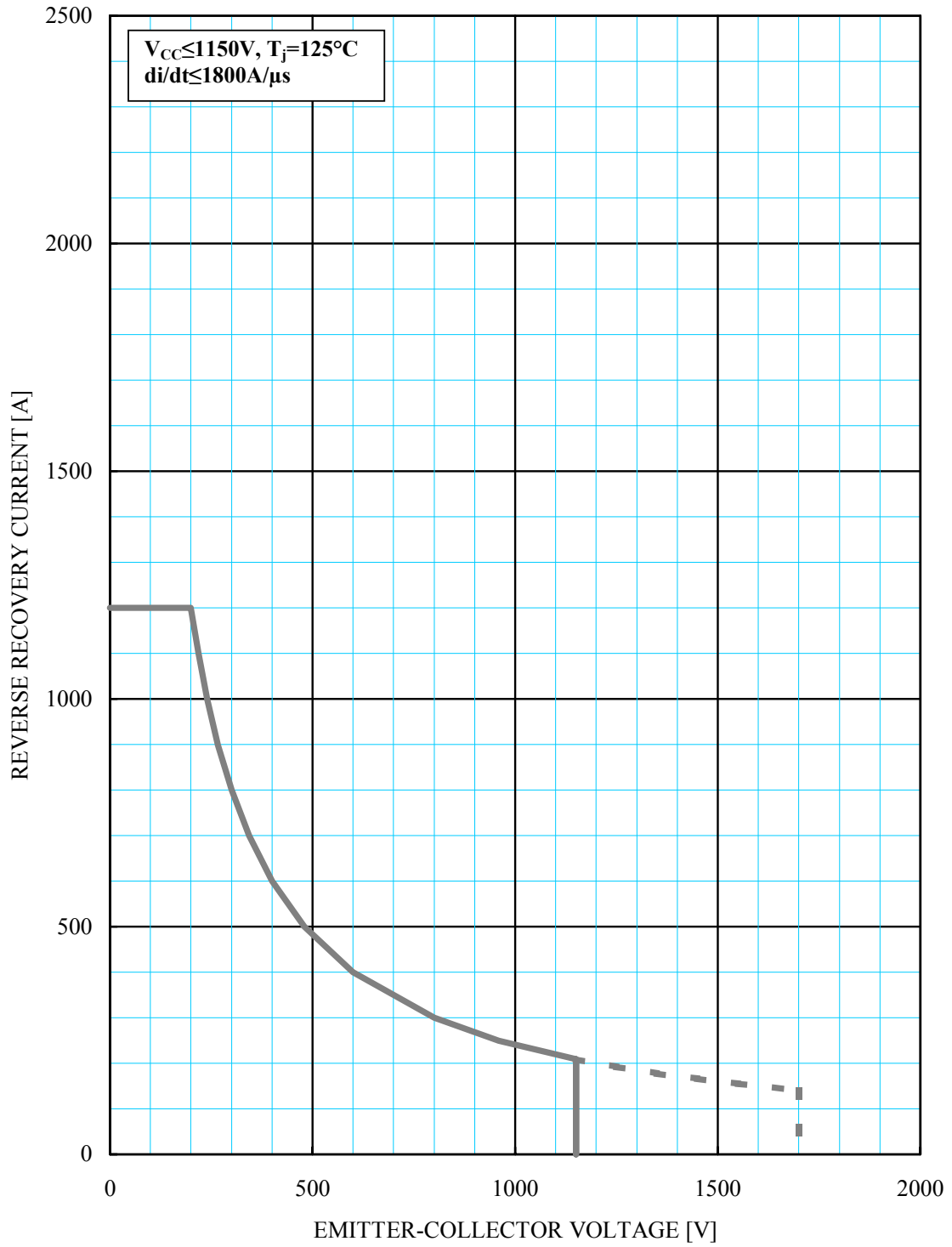
Turn-off switching safe operating area (SWSOA / RBSOA)

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Short circuit safe operating area (SCSOA)

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Reverse recovery safe operating area (RRSOA / Di-SOA)

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