

CM15TF-24H

MEDIUM POWER SWITCHING USE
INSULATED TYPE

Absolute Maximum Ratings, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Ratings	Symbol	CM15TF-24H	Units
Junction Temperature	T_j	-40 to 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to 125	$^\circ\text{C}$
Collector-Emitter Voltage (G-E SHORT)	V_{CES}	1200	Volts
Gate-Emitter Voltage (C-E SHORT)	V_{GES}	± 20	Volts
Collector Current ($T_C = 25^\circ\text{C}$)	I_C	15	Amperes
Peak Collector Current	I_{CM}	30*	Amperes
Emitter Current** ($T_C = 25^\circ\text{C}$)	I_E	15	Amperes
Peak Emitter Current**	I_{EM}	30*	Amperes
Maximum Collector Dissipation ($T_C = 25^\circ\text{C}$, $T_j \leq 150^\circ\text{C}$)	P_C	150	Watts
Mounting Torque, M5 Mounting	-	1.47 ~ 1.96	N · m
Weight	-	260	Grams
Isolation Voltage (Main Terminal to Baseplate, AC 1 min.)	V_{iso}	2500	Vrms

*Pulse width and repetition rate should be such that the device junction temperature (T_j) does not exceed $T_{j(max)}$ rating.

**Represents characteristics of the anti-parallel, emitter-to-collector free-wheel diode (FWDI).

Static Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector-Cutoff Current	I_{CES}	$V_{CE} = V_{CES}$, $V_{GE} = 0V$	-	-	1.0	mA
Gate Leakage Current	I_{GES}	$V_{GE} = V_{GES}$, $V_{CE} = 0V$	-	-	0.5	μA
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$I_C = 1.5\text{mA}$, $V_{CE} = 10V$	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 15A$, $V_{GE} = 15V$	-	2.5	3.4**	Volts
		$I_C = 15A$, $V_{GE} = 15V$, $T_j = 150^\circ\text{C}$	-	2.25	-	Volts
Total Gate Charge	Q_G	$V_{CC} = 600V$, $I_C = 15A$, $V_{GE} = 15V$	-	75	-	nC
Emitter-Collector Voltage	V_{EC}	$I_E = 15A$, $V_{GE} = 0V$	-	-	3.5	Volts

** Pulse width and repetition rate should be such that device junction temperature rise is negligible.

Dynamic Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

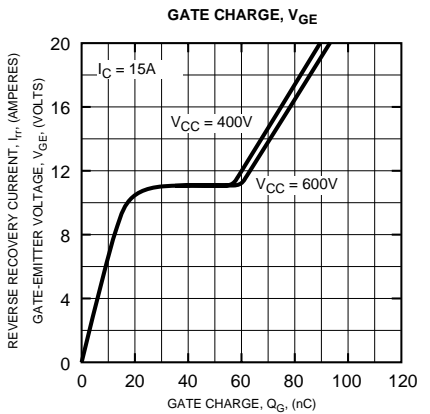
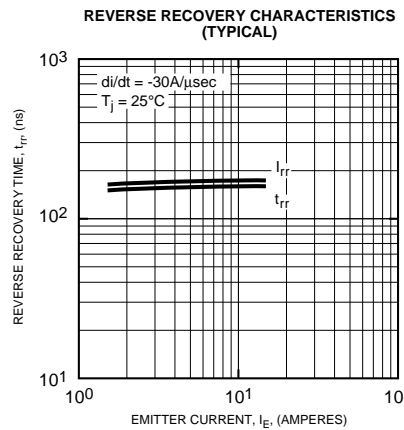
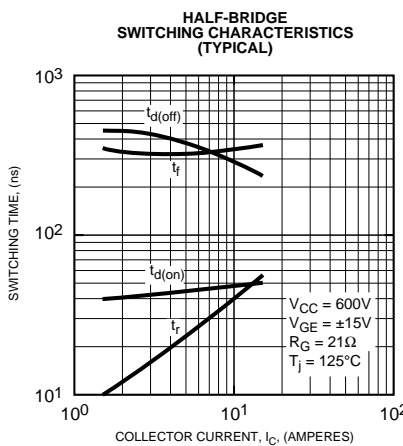
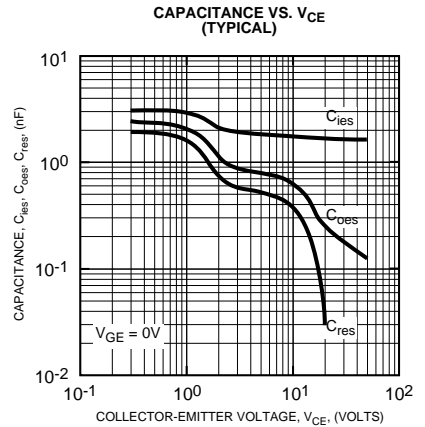
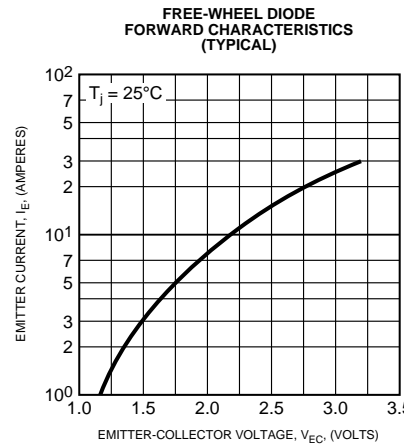
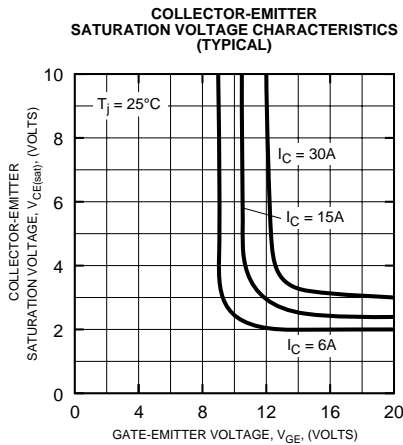
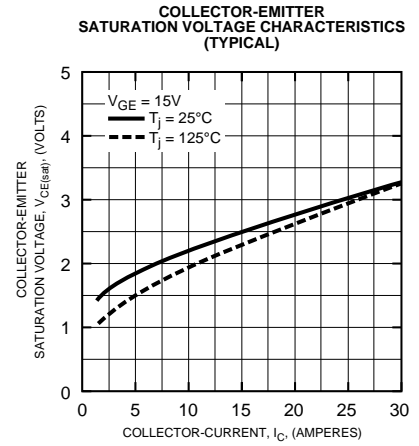
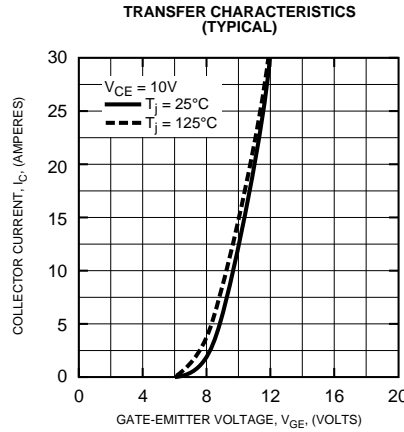
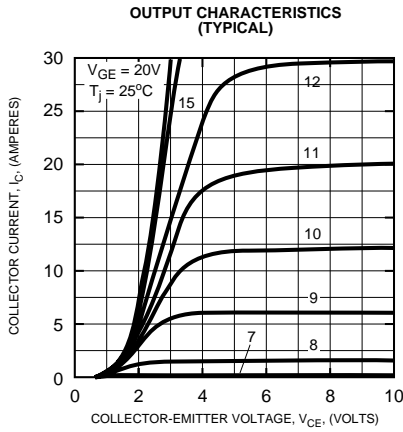
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance	C_{ies}		-	-	3	nF
Output Capacitance	C_{oes}	$V_{GE} = 0V$, $V_{CE} = 10V$	-	-	1.1	nF
Reverse Transfer Capacitance	C_{res}		-	-	0.6	nF
Resistive	Turn-on Delay Time	$V_{CC} = 600V$, $I_C = 150A$,	-	-	100	ns
	Rise Time					
Switching	Turn-off Delay Time	$V_{GE1} = V_{GE2} = 15V$, $R_G = 21\Omega$	-	-	150	ns
	Fall Time					
Diode Reverse Recovery Time	t_{rr}	$I_E = 15A$, $di_E/dt = -30A/\mu\text{s}$	-	-	250	ns
Diode Reverse Recovery Charge	Q_{rr}	$I_E = 15A$, $di_E/dt = -30A/\mu\text{s}$	-	0.11	-	μC

Thermal and Mechanical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per IGBT	-	-	0.80	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per FWDi	-	-	1.40	$^\circ\text{C/W}$
Contact Thermal Resistance	$R_{th(c-f)}$	Per Module, Thermal Grease Applied	-	-	0.058	$^\circ\text{C/W}$

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