

Symbols and Terms

a	Acceleration	$I_{F(AV)M}, I_{T(AV)M}$	Maximum average forward current
BV_{CES}	Collector emitter breakdown voltage	I_{FLT}	Sink current of fault terminal
BV_{DSS}	Drain source breakdown voltage	I_{FRM}	Maximum repetitive forward current
C_{ies}, C_{iss}	Input capacitance	$I_{F(RMS)}, I_{T(RMS)}$	RMS forward current
C_{oes}, C_{oss}	Output capacitance	I_{FSM}, I_{TSM}	Maximum surge forward current
C_{res}, C_{rss}	Reverse transfer (Miller) capacitance	I_G, I_{GT}	Trigger gate current
d	Duty cycle	I_{GD}	Non-trigger gate current
d_A	Strike distance through air	I_{GES}	Gate emitter leakage current
di/dt, -di/dt	Rate of change of current	I_H	Holding current
(di/dt)_{cr}	Critical rate of rise of current	I_{IN(H)}	Signal input current (high level)
di_F/dt, -di_F/dt	Rate of change of forward current	I_{IN(L)}	Signal input current (low level)
d_S	Creep distance on surface	I_{ISOL}	RMS current for isolation test
dv/dt	Rate of rise of voltage	I_L	Latching current
(dv/dt)_{cr}	Critical rate of rise of voltage	I_R	Reverse current
E_{AR}	Repetitive avalanche energy	I_{RM}	Maximum reverse recovery current
E_{AS}	Non-repetitive avalanche energy	I_{RMS}	RMS current
E_{off}	Turn-off energy per pulse	I_{RRM}	Maximum repetitive reverse current
E_{on}	Turn-on energy per pulse	I_S	Continuous source current
F_(mounting) on	Required force to mount hole-less discretes heat sink	I_{SM}	Maximum pulsed source current
g_{fs}	Forward transconductance	I²t, I²dt	I ² t value for fusing
I_{AR}	Repetitive avalanche current	I_{TSM}	Maximum surge on-state current
I_{AVM}	Maximum average forward current	K_f	Characteristic factor
I_{BO}	Breakover current	K_p	Coeff. for energy per pulse E _p (material constant)
I_{C (on)}	Short circuit current	K_T	Temperature coefficient of V _{BO}
I_C	Collector current	L	Series stray inductance
I_{C25}	Continuous DC collector current at T _C = 25°C	M_d	Mounting torque
I_{C90}	Continuous DC collector current at T _C = 90°C	P_C	Collector power dissipation
I_{CES}	Collector emitter leakage current	P_D	Power dissipation
I_{CM}	Maximum pulsed collector current	P_{GAV}	Average gate power dissipation
I_D	Drain current	P_{G(AV)M}	Maximum average gate power dissipation
I_{DD}	Module supply current, operating mode	P_{GM}	Maximum gate power dissipation
I_{DD0}	Module supply current, standby mode	P_{RSM}	Maximum surge reverse power dissipation
I_{D(cont)}	Continuous drain current	P_T, P_{tot}	Total power dissipation
I_{D25}	Continuous drain current at T _C = 25°C	Q_g	Total gate charge
I_{DAV}	Average DC output current	Q_{gc}	Gate collector (Miller) charge
I_{D(AV)M}	Maximum average DC output current	Q_{gd}	Gate drain (Miller) charge
I_{DM}	Maximum pulsed drain current	Q_{ge}	Gate emitter charge
I_{DRM}	Maximum repetitive off-state current	Q_{gs}	Gate source charge
I_{D(RMS)}	RMS output current	Q_r	Reverse recovery charge
I_{DSS}	Drain source leakage current	Q_{RM}	Reverse recovery charge (intrinsic diode)
I_F, I_T	Forward current	Q_S	Recovered charge to I _{RM}
I_{FM}	Maximum forward current	RBSOA	Reverse Bias Safe Operating Area
I_{FAV}	Average forward current	R_{DS(on)}	Static drain source on resistance
		RFI	Radio frequency interference (= EMI)
		R_G	Gate resistance

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R_{GE}	Gate emitter resistance
r_T	Slope resistance (for power loss calculation only)
$R_{thCK}; R_{thCH}$	Thermal resistance case to heatsink
R_{thJA}	Thermal resistance junction to ambient
R_{thJC}	Thermal resistance junction to case
$R_{thJK}; R_{thJH}$	Thermal resistance junction to heatsink
R_{thJS}	Thermal resistance junction to heatsink
R_{thJW}	Thermal resistance junction to water
R_{thKA}	Thermal resistance heatsink to ambient
SCSOA	Short Circuit Safe Operating Area
$T_{amb}; T_A$	Ambient (cooling medium) temperature
$T_C; T_{case}$	Case temperature
$t_{d(off)}$	Turn-off delay time
$t_{d(on)}$	Turn-on delay time
t_{fi}	Current fall time (inductive load)
t_{fr}	Forward recovery time
t_{FLT}	Overcurrent or short circuit trip delay time
t_{gd}	Gate controlled delay time
T_J, T_{VJ}	Virtual junction temperature
T_{JM}, T_{VJM}	Maximum virtual junction temperature
T_K, T_H, T_S	Heatsink temperature
T_L	Lead temperature
$T_{S(max)}$	Maximum allowable heatsink temperature
T_{stg}	Storage temperature
t_p	Pulse time
t_q	Turn-off time
t_r	Current rise time
t_{rr}	Reverse recovery time
t_{rv}	Rise time of collector emitter voltage
t_{SC}	Short circuit duration
V_{BO}	Breakover voltage
V_{CE}	Collector emitter voltage
$V_{CE(sat)}$	Collector emitter saturation voltage
$V_{CE(sat)FLT}$	Collector emitter saturation voltage to indicate fault
V_{CEK}	Collector emitter clamp voltage on chip level
V_{CES}	Collector emitter voltage
V_{CGR}	Collector gate voltage
V_{DD}	Module supply voltage
$V_{DD FLT}$	Module supply voltage without fault
V_{DGR}	Drain gate voltage
V_{DRM}	Maximum repetitive forward blocking voltage
V_{DS}	Drain source voltage
V_{DSM}	Maximum non-repetitive forward blocking voltage
V_{DSS}	Drain source breakdown voltage
Version	Various construction designs of products

V_F	Forward voltage
V_{FLT}	Voltage at fault terminal
V_{FR}	Forward recovery voltage
V_{GD}	Gate non-trigger voltage
V_{GE}	Gate emitter voltage
$V_{GE(th)}$	Gate emitter threshold voltage
V_{GEM}	Maximum transient collector gate voltage
V_{GES}	Maximum DC gate voltage
V_{GS}	Gate source voltage
$V_{GS(th)}$	Gate threshold voltage
V_{GSM}	Maximum transient gate source voltage
V_{GT}	Gate trigger voltage
V_H	Holding voltage
V_{IN}	Input control voltage
$V_{IN(H)}$	Input voltage threshold for IGBT turn-on
$V_{IN(L)}$	Input voltage threshold for IGBT turn-off
V_{ISOL}	Isolation voltage
V_R	Reverse voltage
V_{RES}	Input voltage threshold for Reset = active
V_{RGM}	Maximum reverse gate voltage
V_{RRM}	Maximum repetitive reverse voltage
V_{RSM}	Maximum non-repetitive reverse voltage
V_{SD}	Forward voltage drop
V_T	Forward voltage
V_{T0}	Threshold voltage (for power loss calculation)
Z_{thJC}	Transient thermal impedance junction to case
Z_{thJK}, Z_{thJH}	Transient thermal impedance junction to heatsink

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Note

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