

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
$F_{(mounting)}$	Required force to mount hole-less discretes	I_{SM}	Maximum pulsed source current
on	heat sink	$I^2t, \int i^2 dt$	I ² t value for fusing
g_{fs}	Forward transconductance	I_{TSM}	Maximum surge on-state current
I_{AR}	Repetitive avalanche current	K_f	Characteristic factor
I_{AVM}	Maximum average forward current	K_p	Coeff. for energy per pulse E_p (material constant)
I_{BO}	Breakover current	K_T	Temperature coefficient of V_{BO}
$I_C (on)$	Short circuit current	L	Series stray inductance
I_C	Collector current	M_d	Mounting torque
I_{C25}	Continuous DC collector current at $T_C = 25^\circ C$	P_C	Collector power dissipation
I_{C90}	Continuous DC collector current at $T_C = 90^\circ C$	P_D	Power dissipation
I_{CES}	Collector emitter leakage current	P_{GAV}	Average gate power dissipation
I_{CM}	Maximum pulsed collector current	P_{G(AV)M}	Maximum average gate power dissipation
I_D	Drain current	P_{GM}	Maximum gate power dissipation
I_{DD}	Module supply current, operating mode	P_{RSM}	Maximum surge reverse power dissipation
I_{DD0}	Module supply current, standby mode	P_{T}, P_{tot}}	Total power dissipation
$I_{D(cont)}$	Continuous drain current	Q_g	Total gate charge
I_{D25}	Continuous drain current at $T_C = 25^\circ C$	Q_{gc}	Gate collector (Miller) charge
I_{DAV}	Average DC output current	Q_{gd}	Gate drain (Miller) charge
$I_{D(AV)M}$	Maximum average DC output current	Q_{ge}	Gate emitter charge
I_{DM}	Maximum pulsed drain current	Q_{gs}	Gate source charge
I_{DRM}	Maximum repetitive off-state current	Q_r	Reverse recovery charge
$I_{D(RMS)}$	RMS output current	Q_{RM}}	Reverse recovery charge (intrinsic diode)
I_{DSS}	Drain source leakage current	Q_S	Recovered charge to I_{RM}
I_F, I_T	Forward current	RBSOA	Reverse Bias Safe Operating Area
I_{FM}	Maximum forward current	R_{DS(on)}	Static drain source on resistance
I_{FAV}	Average forward current	RFI	Radio frequency interference (= EMI)
		R_G	Gate resistance

R_{GE}	Gate emitter resistance	V_F	Forward voltage
r_T	Slope resistance (for power loss calculation only)	V_{FLT}	Voltage at fault terminal
$R_{thCK}; R_{thCH}$	Thermal resistance case to heatsink	V_{FR}	Forward recovery voltage
R_{thJA}	Thermal resistance junction to ambient	V_{GD}	Gate non-trigger voltage
R_{thJC}	Thermal resistance junction to case	V_{GE}	Gate emitter voltage
$R_{thJK}; R_{thJH}$	Thermal resistance junction to heatsink	$V_{GE(th)}$	Gate emitter threshold voltage
R_{thJS}	Thermal resistance junction to heatsink	V_{GEM}	Maximum transient collector gate voltage
R_{thJW}	Thermal resistance junction to water	V_{GES}	Maximum DC gate voltage
R_{thKA}	Thermal resistance heatsink to ambient	V_{GS}	Gate source voltage
SCSOA	Short Circuit Safe Operating Area	$V_{GS(th)}$	Gate threshold voltage
$T_{amb}; T_A$	Ambient (cooling medium) temperature	V_{GSM}	Maximum transient gate source voltage
$T_C; T_{case}$	Case temperature	V_{GT}	Gate trigger voltage
$t_{d(off)}$	Turn-off delay time	V_H	Holding voltage
$t_{d(on)}$	Turn-on delay time	V_{IN}	Input control voltage
t_{fi}	Current fall time (inductive load)	$V_{IN(H)}$	Input voltage threshold for IGBT turn-on
t_{fr}	Forward recovery time	$V_{IN(L)}$	Input voltage threshold for IGBT turn-off
t_{FLT}	Overcurrent or short circuit trip delay time	V_{ISOL}	Isolation voltage
t_{gd}	Gate controlled delay time	V_R	Reverse voltage
$T_J; T_{VJ}$	Virtual junction temperature	V_{RES}	Input voltage threshold for Reset = active
$T_{JM}; T_{VJM}$	Maximum virtual junction temperature	V_{RGM}	Maximum reverse gate voltage
$T_K; T_H; T_S$	Heatsink temperature	V_{RRM}	Maximum repetitive reverse voltage
T_L	Lead temperature	V_{RSM}	Maximum non-repetitive reverse voltage
$T_{S(max)}$	Maximum allowable heatsink temperature	V_{SD}	Forward voltage drop
T_{stg}	Storage temperature	V_T	Forward voltage
t_p	Pulse time	V_{TO}	Threshold voltage (for power loss calculation)
t_q	Turn-off time	Z_{thJC}	Transient thermal impedance junction to case
t_r	Current rise time	$Z_{thJK}; Z_{thJH}$	Transient thermal impedance junction to heatsink
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		

Semiconductor Catalog, Edition 2006

© IXYS Corporation 2006
All Rights reserved

Note

As far as patents or other rights of third parties are concerned, liability is only assumed for components per se, not for applications, processes and circuits implemented with components or assemblies. The information describes the type of component and shall not be considered as assured characteristics. Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. Terms of delivery and rights to change design or specifications are reserved. Changes have been made to earlier published specifications. The data herein supersedes all previously published informations.

Life support applications

IXYS products used in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury must be expressly authorized for such purposes.