

Characteristics and Characteristics

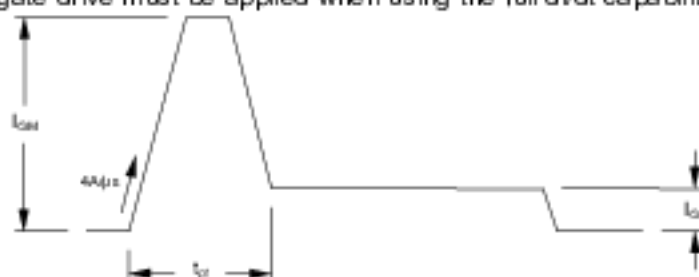
1.0 Voltage Grades Table

	PARAMETER	MIN.	TYP.	MAX.	TEST CONDITIONS (Note 1)		UNITS
V_{TM}	Maximum peak on-state voltage	-	-	2.40	$V_{GM}=2000A$	$V_D = V_R$ DC V	V
V_{TM}	Maximum peak on-state voltage	2600	-	2.95	$I_{TM}=3500A$	1550	V
V_{TD}	Threshold voltage	-	-	1.60			V
r_T	Slope resistance	-	-	0.40			m Ω
$(dv/dt)_T$	On-state rate of rise of on-state voltage	-	-	200	$V_D=60\% V_{DRM}$, Linear Ramp, Gate off		V/ μs
I_{DRM}	Peak off-state current	-	-	100	Rated V_{DRM}		mA
I_{RRM}	Peak reverse current	-	-	100	Rated V_{RRM}		mA
V_{GT}	Gate trigger voltage	-	-	3.0	This Report is applicable to other t_{tr} -applied dv/dt combinations when supply has been agreed by Sales/Production.		V
I_{GT}	Gate trigger current	-	-	300	This Report is applicable to other t_{tr} -applied dv/dt combinations when supply has been agreed by Sales/Production.		mA
V_{GD}	Gate non-trigger voltage	-	-	0.25	Rated V_{DRM}		V
I_H	Holding current	-	-	1000	$T_F=25^\circ C$		mA
t_{gt}	Turn-on time	-	1.5	3.0	Higher dv/dt selections are available up to 1000V/ μs on request. $V_D=67\% V_{DRM}$, $I_{TM}=1000A$, $di/dt=60A/\mu s$, $I_F=2A$, $t_F=0.5\mu s$, $T_F=25^\circ C$		μs
Q_R	Recovered charge	-	1600	-	A blocking voltage de-rating factor of 0.13%/°C is applicable to this device for T_J below 25°C.		μC
Q_{RR}	Recovered charge, 50% chord	-	900	1000	$I_{TM}=1000A$, $t_F=1000\mu s$, $di/dt=60A/\mu s$, $V_F=50V$		μC
I_{RM}	Reverse recovery current	-	240	-	Reverse recovery components		A
t_{rr}	Reverse recovery time	-	7.5	-	When selecting snubber components, care must be taken not to use excessively large values of snubber capacitor or excessively small values of snubber resistor. Such excessive or inappropriate values may lead to device damage due to the large resultant values of snubber discharge current. If required, please consult the factory for assistance.		μs
t_q	Turn-off time (note 2)	100	-	200	$I_{TM}=1000A$, $t_F=1000\mu s$, $di/dt=60A/\mu s$, $V_F=50V$, $V_R=33\% V_{DRM}$, $dv/dt=200V/\mu s$		μs
R_{thJK}	Thermal resistance, junction to sink	-	-	0.022	Double side cooled		K/W
	Thermal resistance, junction to case	-	-	0.044	Single side cooled		K/W
F	The maximum un-primed rate of rise of on-state current must not exceed 1500A/ μs at any time during turn-on on a non-repetitive basis. For repetitive performance, the on-state rate of rise of current must not exceed 1000A/ μs at any time during turn-on. Note that these values of rate of rise of current apply to the total device current including that from any local snubber network.	-	-	510			kN
W_t	Weight	-	-	-			g

Notes >

1) Unless otherwise indicated $T_F=125^\circ C$.

2) The required t_q (specified with $dv/dt=200V/\mu s$) is represented by an 'x' in the device part number. See ordering information for The normal requirement for a typical gate drive is illustrated below. An open circuit voltage of at least 30V is assumed. This gate drive must be applied when using the full di/dt capability of the device.



The magnitude of I_{GM} should be between five and ten times I_{GT} , which is shown on page 2. Its duration (t_{GT}) should be 20 μs or sufficient to allow the anode current to reach ten times I_L , whichever is greater. Otherwise, an increase in pulse current could be needed to supply the necessary charge to trigger. The 'back-porch' current I_0 should remain flowing for the same duration as the anode current and have a magnitude in the order of 1.5 times I_{GT} .