高端电力电子器件和装置制造商

CSG60K6000

门极可关断晶闸管

特 性

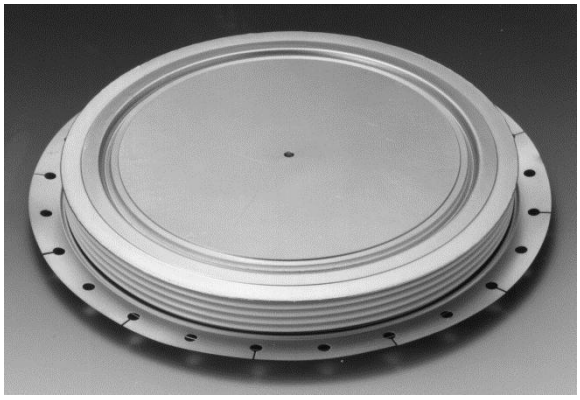
- 双面散热
- 可靠性高
- 高压性能
- 无快熔故障保护
- 大浪涌电流性能
- 关断性能可减少设备尺寸和重量，环保低噪音

关键参数

I_{TQRM}	6000A
$I_{T(AV)}$	2000A
V_{DRM}	6000V
V_{RRM}	22V

应 用

- 变速交流电机驱动逆变器(VSD-AC)
- 不间断电源
- 高电压转换器
- 斩波器
- 电焊机
- 感应加热
- DC / DC 转换器



电压等级

符号	参数	测试条件	数值	单位
V_{RRM}	Repetitive peak reverse voltage	-	22	V
V_{RSM}	Non-repetitive peak reverse voltage	-	22	V
V_{DRM}	Repetitive peak off state voltage	V_{GK}=-2V	6000	V
V_{DSM}	Non-repetitive peak off state voltage	V_{GK}=-2V	6000	V
V_{LTDS}	Long term DC stability voltage	V_{GK}=-2V, λ=100Fit	3200	V

电流等级

符号	参数	测试条件	数值	单位
I_{TQRM}	Repetitive controllable on state current	V_{DM}=5500V, V_D=3000V, Tj=25/125 ºC Cc=6μF, Lc=0.4μH, V_{RG}=21V di_{GQ}/dt=10000A/μs (See Fig.1,2)	6000	A
$I_{T(RMS)}$	RMS on-state current	Applied for all condition angles f=60Hz,sinewave θ=180°, Tf=88 ºC	3100	A
$I_{T(AV)}$	Average on-state current		2000	A

浪涌等级

符号	参数	测试条件	数值	单位
I_{TSM}	Surge on-state current	One half cycle at 60Hz, Tj=125 ºC Start	50	kA
I^2t	Current-squared, time integration		10.4×10^6	A^2s
di_T/dt	Critical rate of rise of on state current	I_T=6000A, V_D=3000V, I_{GM}=300A di_G/dt=200A/μs, Tj=25/125 ºC (See Fig.1,2)	1000	A/μs

门极等级

符号	参数	测试条件	数值	单位
V_{RGM}	peak reverse gate voltage		22	V
I_{FGM}	Peak forward gate current		1500	A
I_{RGM}	Peak reverse gate current		6000	A
P_{FGM}	Peak forward gate power dissipation		15	kW
P_{RGM}	Peak reverse gate power dissipation		180	kW
$P_{FG(AV)}$	Average forward gate power dissipation		300	W
$P_{RG(AV)}$	Average reverse gate power dissipation		900	W

热学&力学参数

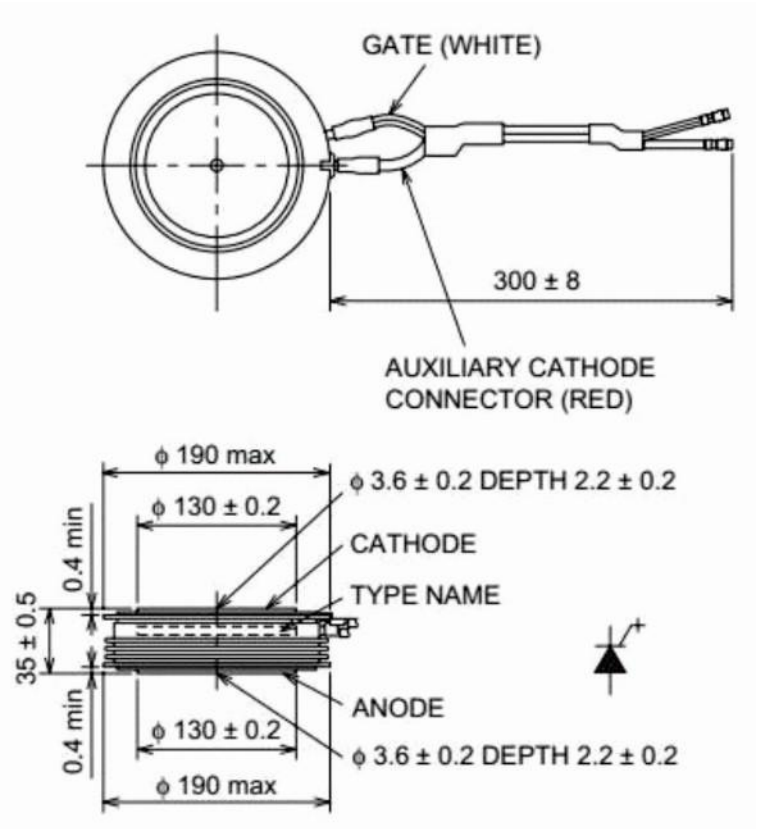
符号	参数	测试条件	数值	单位
Rth(j-f)	Thermal resistance	Junction to Fin	0.0044	K/W
Tj	Operation junction temperature		-40~125	°C
Tstg	Storage temperature		-40~150	°C
—	Mounting force required	(Recommended value 108 kN)	98 ~ 118	kN
—	Weight	Typical value 3700g	—	g

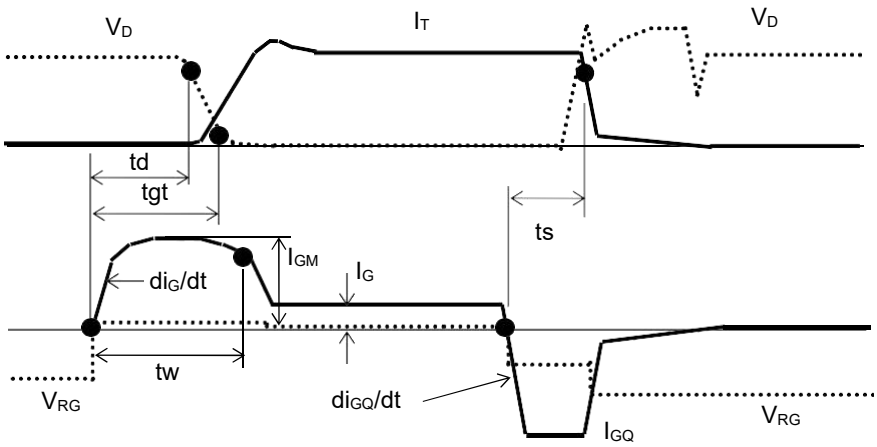
特 性

Symbol	Parameter	Condition	Limits			Unit
			Min	Typ	Max	
V_{TM}	On-state voltage	I_T=6000A, Tj=125 ºC	—	—	4	V
I_{RRM}	Repetitive peak reverse current	V_{RM}=22V, Tj=125 ºC	—	—	100	mA
I_{DRM}	Repetitive peak off state current	V_{DM}=6000V, V_{GK}=-2V, Tj=125 ºC	—	—	150	mA
I_{GRM}	Reverse gate current	V_{RG}=22V, Tj=125 ºC	—	—	100	mA
dv/dt	Critical rate of rise of off state voltage	V_D=3000V, V_{GK}=-2V, Tj=125 ºC (Expo. wave)	3000	—	—	V/μs
tgt	Turn-on time	I_T=6000A, V_D=3000V, di/dt=1000A/μs I_{GM}=300A, di_G/dt=200A/μs, Tj=125ºC (See Fig.1,2)	—	—	3	μs
td	Turn-on delay time		—	—	1	μs
Eon	Turn-on switching energy	I_T=2800A, V_D=3000V, di/dt=1000A/μs I_{GM}=300A, di_G/dt=200A/μs, Tj=125ºC (See Fig.1,2)	—	—	2.0	J/P
ts	Storage time	I_T=6000A, V_{DM}=5500V, V_D=3000V Tj=125 ºC, Cc=6μF, Lc=0.4μH, V_{RG}=21V di_{GQ}/dt=10000A/μs (See Fig.1,2)	—	—	3	μs
Eoff	Turn-off switching energy	I_T=2800A, V_{DM}=4300V, V_D=3000V Tj=125 ºC, Cc=6μF, Lc=0.4μH, V_{RG}=21V di_{GQ}/dt=10000A/μs (See Fig.1,2)	—	—	20	J/P
I_{GT}	Gate trigger current	V_D=24V, R_L=0.1Ω, Tj=25 ºC DC method	—	—	8	A
V_{GT}	Gate trigger voltage		—	—	1.5	V

产品外形尺寸

OUTLINE DRAWING & CIRCUIT DIAGRAM **Dimensions in mm**





td; $0V_{RG}$ ～$0.9V_D$

tgt; $0V_{RG}$～$0.1V_D$

ts; $0V_{RG}$～$0.9I_T$

di_G/dt; $0.1I_{GM}$～$0.9I_{GM}$

tw; $0V_{RG}$～$0.9I_{GM}$

Fig.1:Turn on and turn off waveform

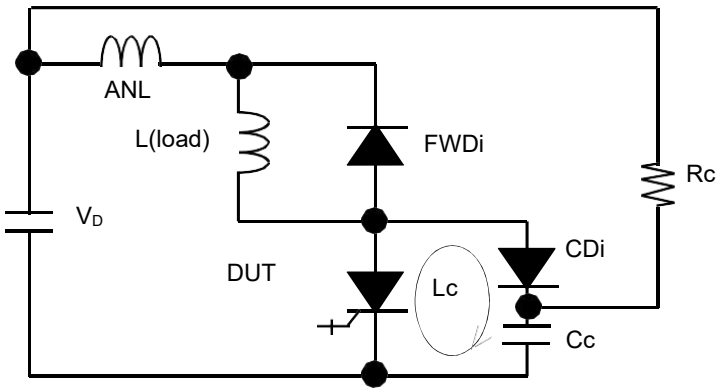
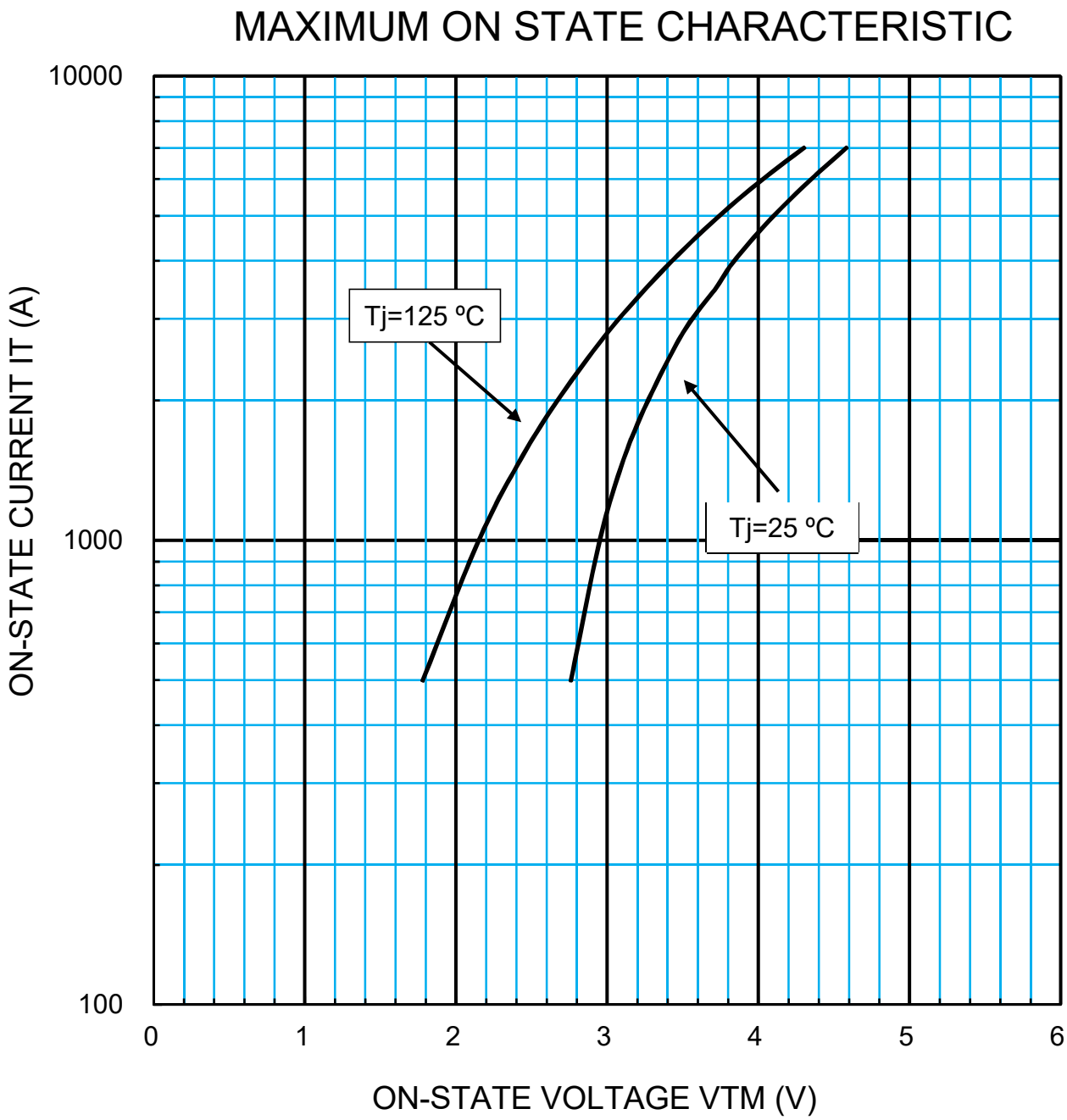
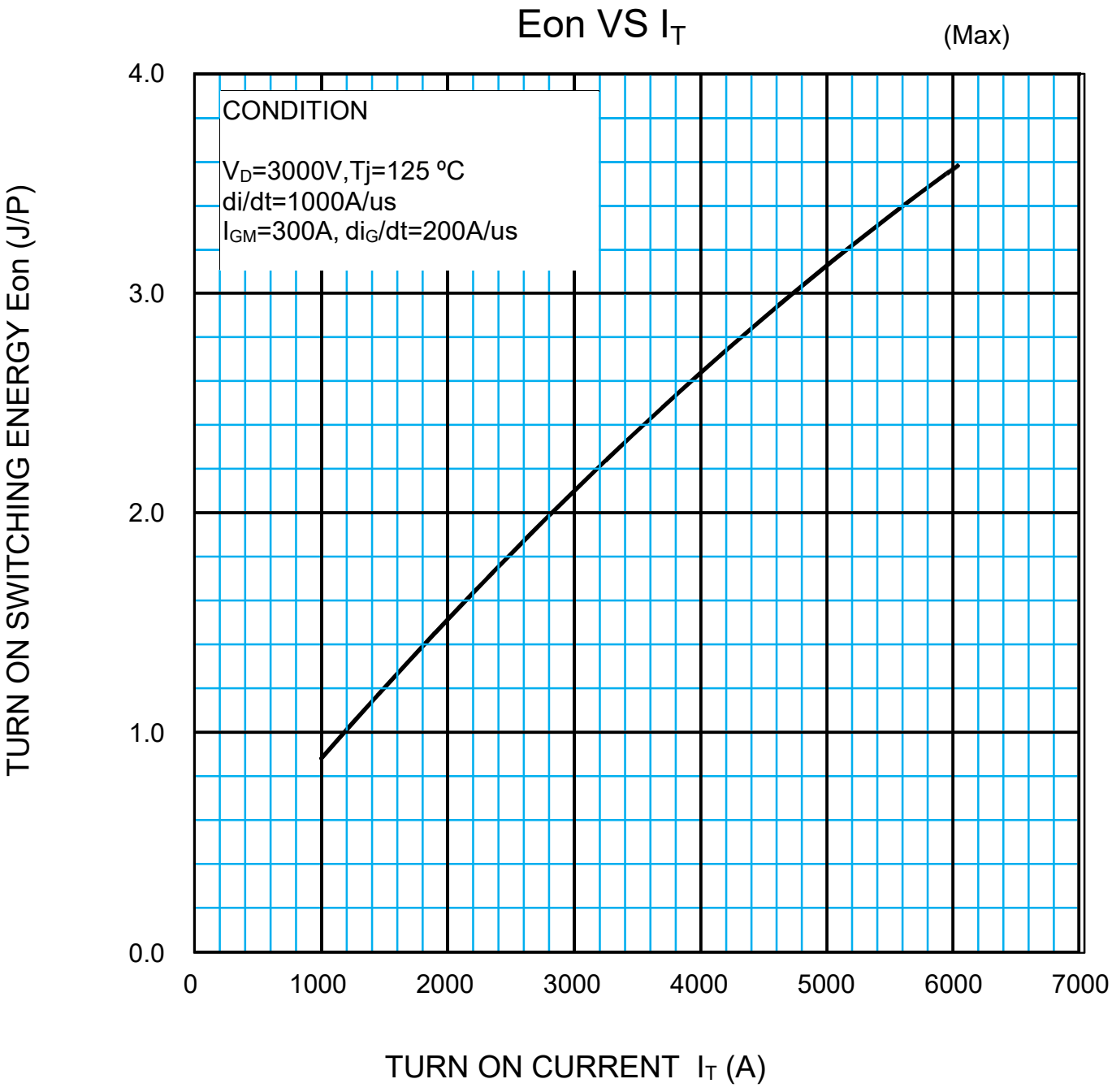
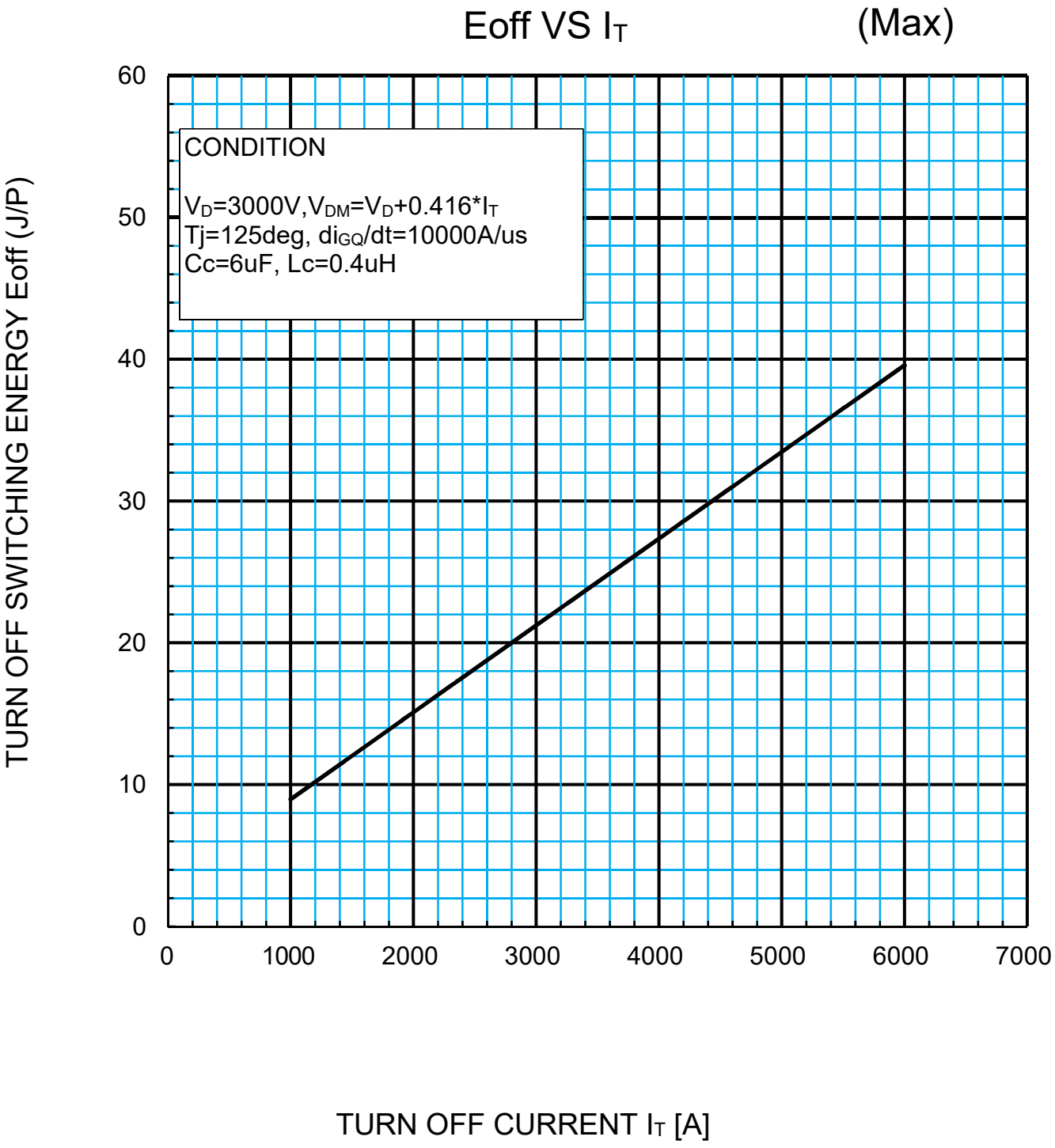


Fig.2:Turn-on and turn-off test circuit (With clamp circuit)

PERFORMANCE CURVES







MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC