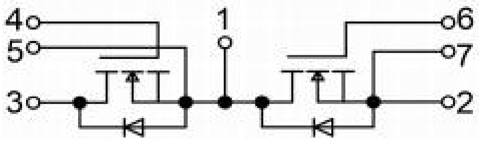
PRODUCT FEATURES

☐ High Switching Frequency
☐ Low Switching Loss
☐ Soft, fast Switching
☐ Easy Paralleling
☐ Low Inductive Design
☐ Zero Turn-off Tail Current from MOSFET

APPLICATIONS

☐ High frequency switching application
☐ Medical applications
☐ Motion/servo control
☐ UPS systems



SIC

最大额定值 **Maximum Ratings**

符号 Symbol	参数名称 Parameter	测试条件 Test Conditions	数值 Value	单位 Unit
V_{DSmax}	漏源极电压 Drain-source voltage	V_{GS}=0V, I_D=100μA	1200	V
V_{GSS}	栅源电压 Gate-source voltage	T_C=25℃	-8/+23	V
V_{GSop}	栅源电压 Gate-source voltage		-4/+18	V
I_D	持续正向电流， 由 $T_{vj\,max}$ 限制 Continuous forward current, limited by $T_{vj\,max}$	T_C=25℃ , $T_{vj\,max}$=175℃	207	A
		T_C=100℃, $T_{vj\,max}$=175℃	144	A
I_{DM}	最大重复正向电流， 由 $T_{vj\,max}$ 限制 Maximum repetitive forward current, limited by $T_{vj\,max}$	t_P=1ms	400	A
$T_{vj\,max}$	最大允许结温 Max. Junction temperature		175	°C
$T_{vj(op)}$	工作结温 Operation junction temperature		-55...+175	°C

电特性值 Electrical Characteristics

除非特别声明，否则 T_{vj}= 25 °C T_{vj}= 25 °C unless otherwise stated

符号 Symbol	参数名称 Parameter	测试条件 Test Conditions	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
I_{DSS}	零栅压漏极电流 Zero gate voltage drain current	V_{GS} = 0V, V_{DS} = V_{DSS}			100	µA
I_{GSS}	栅极漏电流 Gate leakage current	V_{GS} = V_{GSS}, V_{DS} = 0V			500	nA
$V_{GS(th)}$ (*1)	栅极-源极阈值电压 Gate threshold voltage	I_D = 30 mA, V_{GS} = V_{DS}	1.8	2.7	3.6	V
$R_{DS(on)}$	漏极-源极通态电阻 Drain-source on-state resistance	V_{GS} =15V, I_D = 120A		14	18	mΩ
		V_{GS} =15V, I_D = 120A, T_{vj} = 175 °C		18		mΩ
g_{fs}	跨导 Forward transconductance	V_{DS} =20V, I_D = 120A		21		S
C_{iss}	输入电容 Input capacitance	V_{DS} = 1000V, V_{GS} = 0V, f = 100kHz, V_{AC} = 30mV		7620		pF
C_{oss}	输出电容 Output capacitance			441		pF
C_{rss}	反向传输电容 Reverse transfer capacitance			30		pF
E_{oss}	电容存储能量 C_{oss} Stored Energy			525		µJ
R_{Gint}	内部栅极电阻 Internal gate resistor	V_{GS} =0V		1		Ω
Q_{gs}	栅源电荷 Gate to source charge	I_D =120A, V_{DS} = 600V, V_{GS} = -3/+15V		60		nC
Q_{gd}	栅漏电荷 Gate to drain charge			204		nC
Q_g	总栅极电荷 Total gate charge			291		nC
V_{SD}	二极管正向电压 Diode forward voltage	I_{SD} =120A, V_{GS} = -3V		6.0		V
		I_{SD} =120A, V_{GS} = -3V, T_{vj} = 175 °C		5.5		V

注意: 1.(*1)表示做过预处理后的测试值。

Note: 1. (*1) indicates $V_{GS(th)}$ is preprocessed).

电特性值 Electrical Characteristics

符号 Symbol	参数名称 Parameter	测试条件 Test Conditions		最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
$t_{d(off)}$	关断延迟时间 Turn-off delay time	I_D = 120A, V_{DS} = 800V, V_{GS} = -3/+15V, $R_{G(OFF)}$ = 12Ω, dv/dt =13000V/μs (T_{vj} = 175 °C).	T_{vj} = 25 °C		190		ns
			T_{vj} = 175 °C		215		
t_f	下降时间 Fall time		T_{vj} = 25 °C		35		ns
			T_{vj} = 175 °C		60		
E_{OFF}	关断损耗 Turn-off energy loss		T_{vj} = 25 °C		4440		μJ
			T_{vj} = 175 °C		4560		
$t_{d(on)}$	开通延迟时间 Turn-on delay time	I_D = 120A, V_{DS} = 800V, V_{GS} = -3/+15V, $R_{G(ON)}$ = 3Ω, di/dt =2600A/μs (T_{vj} = 175 °C).	T_{vj} = 25 °C		14		ns
			T_{vj} = 175 °C		12		
t_r	上升时间 Rise time		T_{vj} = 25 °C		17		ns
			T_{vj} = 175 °C		16		
E_{ON}	开通损耗 Turn-on energy loss		T_{vj} = 25 °C		2850		μJ
			T_{vj} = 175 °C		3450		
Q_{rr}	二极管反向恢复电荷 Diode reverse recovery charge	I_{SD} = 120A, V_{DS} = 800V, - di_{SD}/dt = 2600A/μs (T_{vj} = 175 °C).	T_{vj} = 25 °C		278		nC
			T_{vj} = 175 °C		1440		
I_{rr}	二极管反向恢复电流 Diode reverse recovery current		T_{vj} = 25 °C		48		A
			T_{vj} = 175 °C		78		
E_{rec}	二极管反向恢复损耗 Diode reverse recovery energy		T_{vj} = 25 °C		30		μJ
			T_{vj} = 175 °C		480		

热学特性 Thermal Charactristics

符号 (Symbol)	参数名称 (Parameter)	条件 (Test Conditions)	最小值 (Min)	典型值 (Typ)	最大值 (Max)	单位 (Unit)
$R_{th(J-C)}$	结到壳热阻 Thermal resistance, junction – case	T_C = 25°C, T_{vj} = 175°C	-	0.50	0.55	K/W
$R_{th(J-A)}$	结到环境热阻 Thermal resistance, junction – ambient	T_a = 25°C, T_{vj} = 175°C		40		

MODULE CHARACTERISTICS(*Tc = 25 °C unless otherwise specified)*

Symbol	Parameter/ Test Conditions		Values	Unit
T_{Jmax}	Max. Junction Temperature		175	°C
T_{Jop}	Operating Temperature		-40~ 150	
T_{stg}	Storage Temperature		-40~ 125	
V_{isol}	Isolation Test Voltage	AC, 50 Hz(R. M. S) , t= 1 minute	3000	V
CTI	Comparative Tracking Index		>200	
Torque	to heatsink	Recommended （M5)	3~5	Nm
	to terminal	Recommended （M5）	3~5	Nm
Weight			160	G

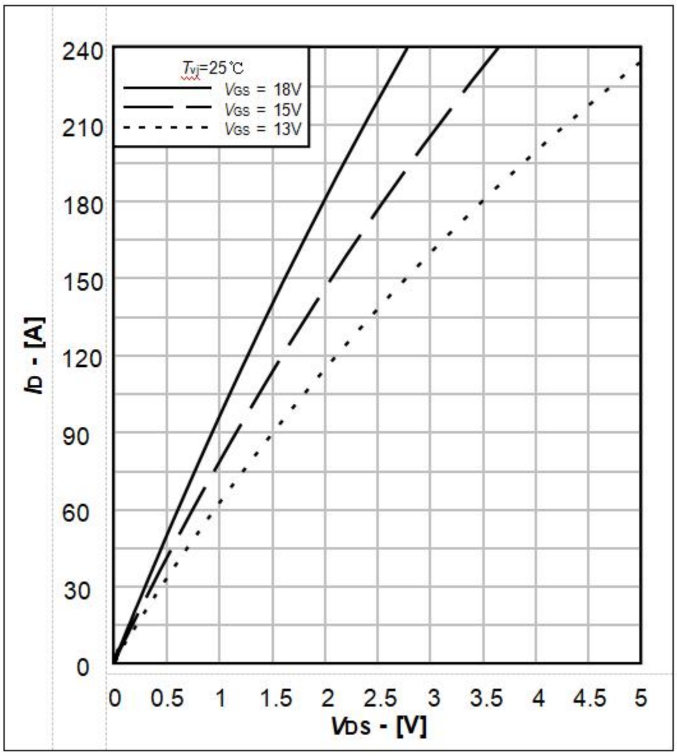


图 2. 输出特性典型曲线, I_D= f (V_{DS}), T_{vj} = 25 °C

Fig.2 Typical output characteristics, I_D= f (V_{DS}), T_{vj} = 25 °C

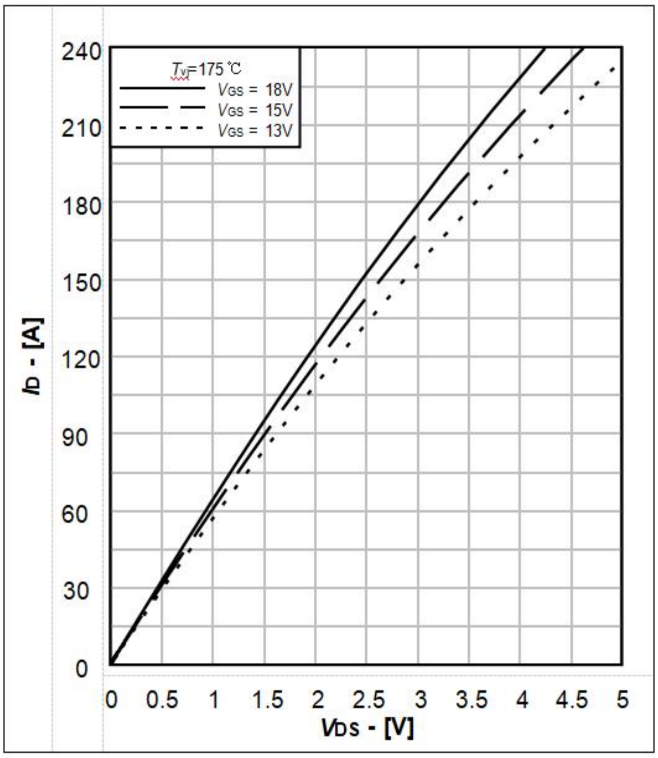


图 3. 输出特性典型曲线, I_D= f (V_{DS}), T_{vj} = 175 °C

Fig.3 Typical output characteristics, I_D= f (V_{DS}), T_{vj} = 175 °C

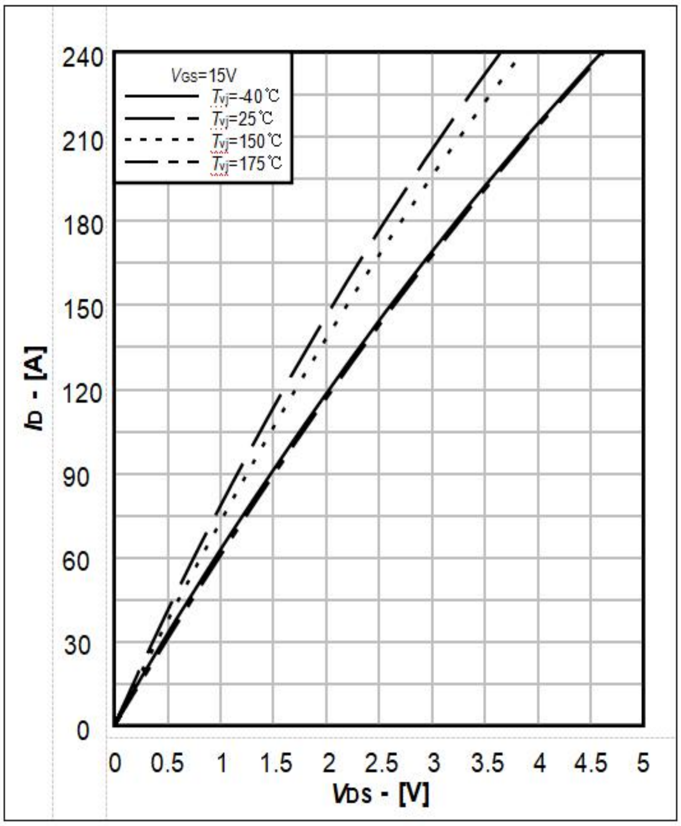


图 4. 输出特性典型曲线, I_D= f (V_{DS})

Fig.4 Typical output characteristics, I_D= f (V_{DS})

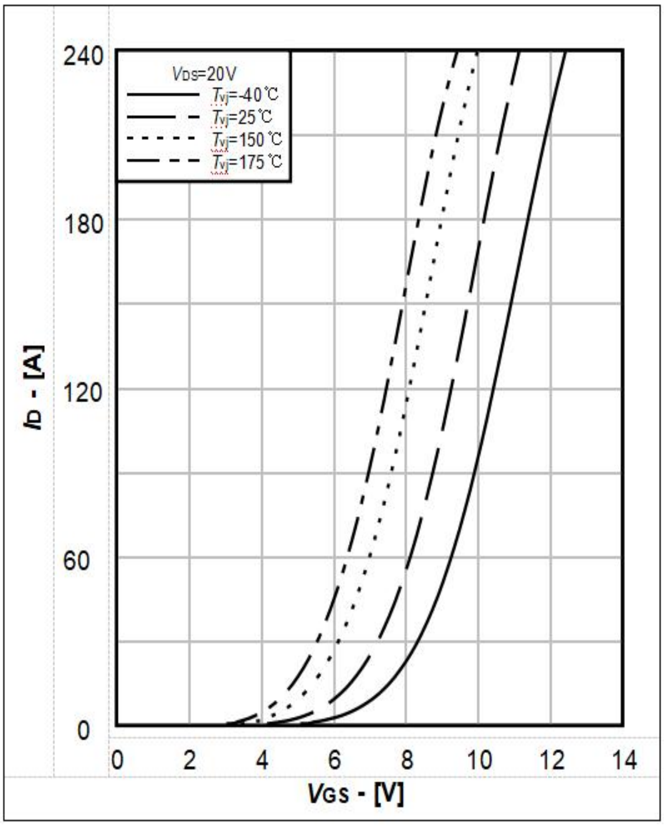
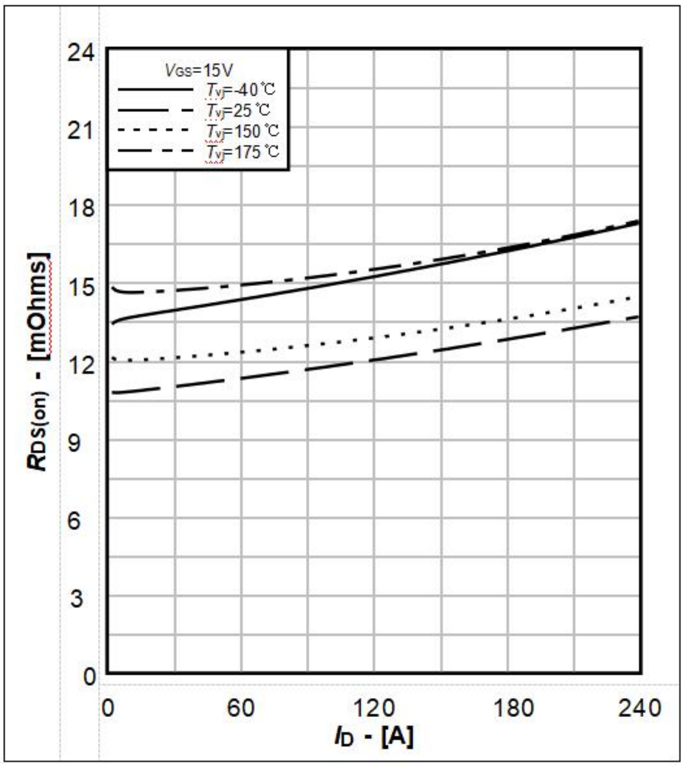


图 5.传输特性典型曲线,I_D= f (V_{GS})

Fig.5 Typical transfer characteristics, I_D= f (V_{GS})



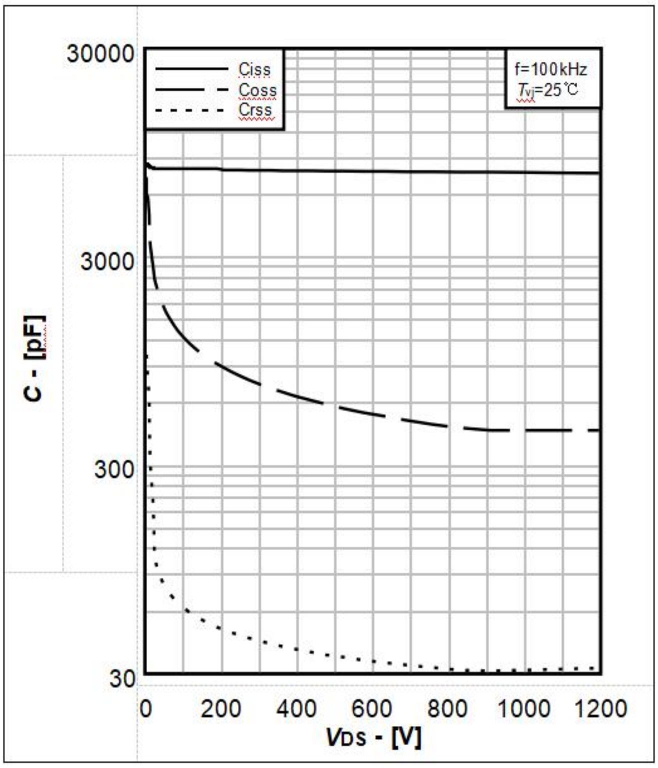
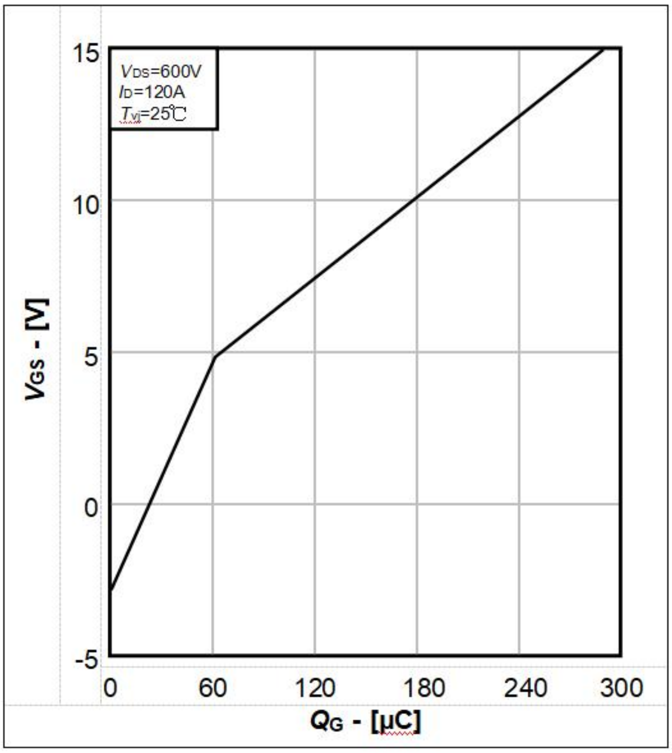


图 6. 导通电阻典型曲线, $R_{DS(on)}$ = f (I_D)

Fig.6 Typical On-Resistance characteristics, $R_{DS(on)}$ = f (I_D)

图 7. 电容特性典型曲线, C= f (V_{DS})

Fig.7 Typical capacity characteristic, C= f (V_{DS})



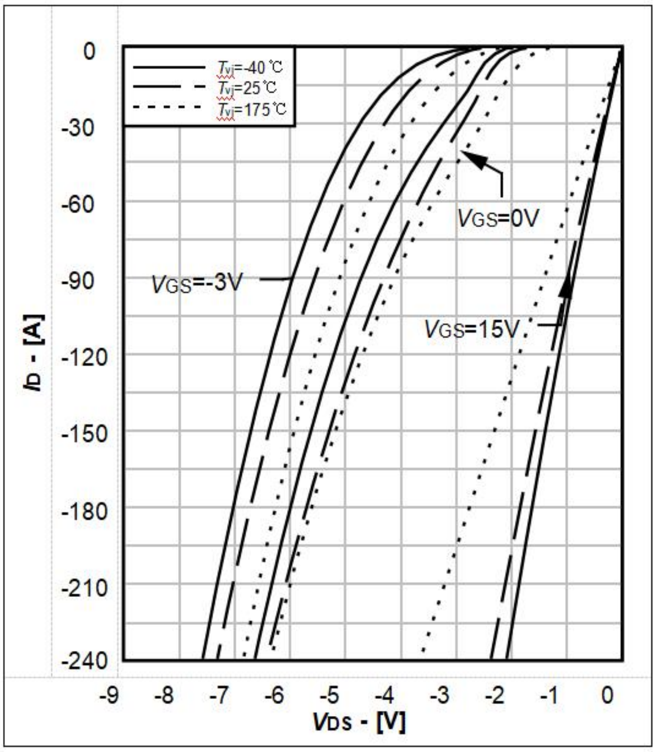


图 8. 栅极电荷特性典型曲线, V_{GS} = f (Q_G)

Fig.8 Typical gate charge characteristic, V_{GS}= f (Q_G)

图 9. 体二极管及第三象限输出特性典型曲线, I_D = f (V_{DS})

Fig.9 Typical body diode output and 3rd quadrant characteristic, I_D = f (V_{DS})

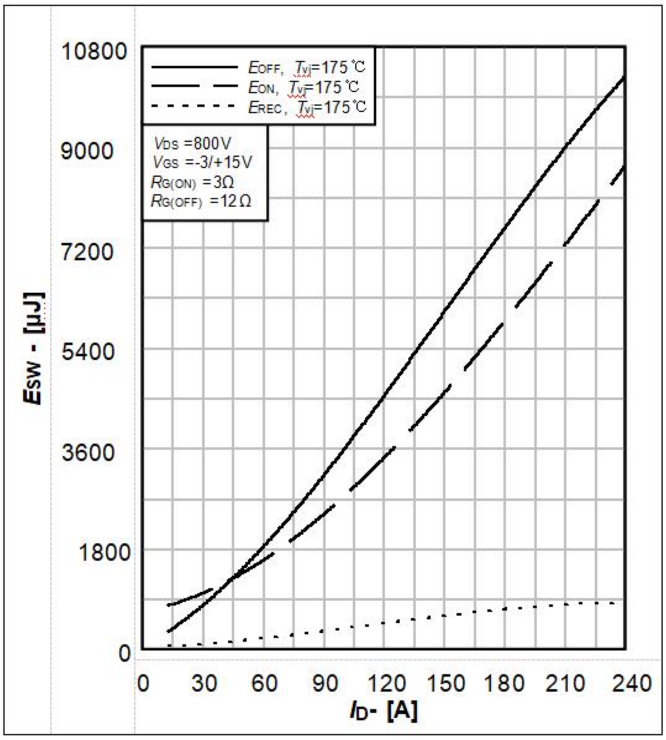


图 10. 开关损耗典型曲线, E_{on}= f (I_D), E_{off}= f (I_D) , E_{rec}= f (I_D)

Fig.10 Typical switching energy, E_{on}= f (I_D), E_{off}= f (I_D) , E_{rec}= f (I_D)

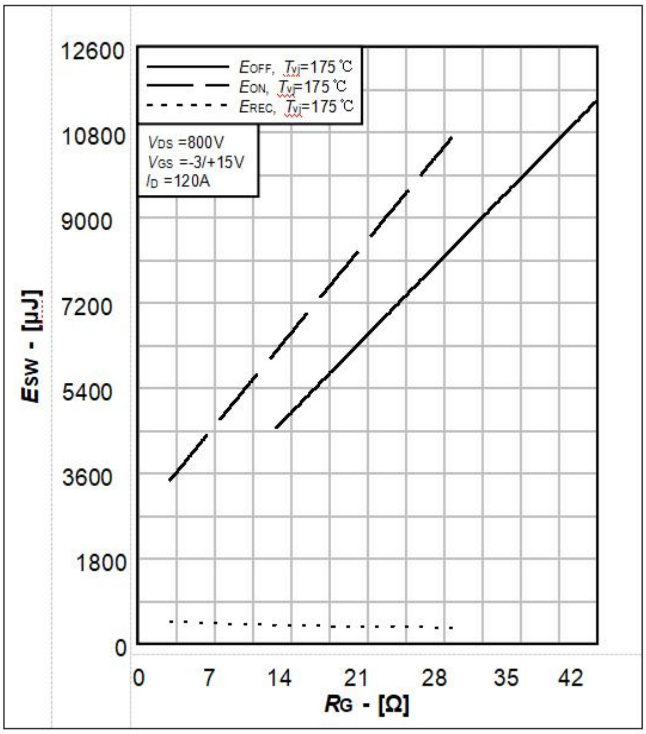
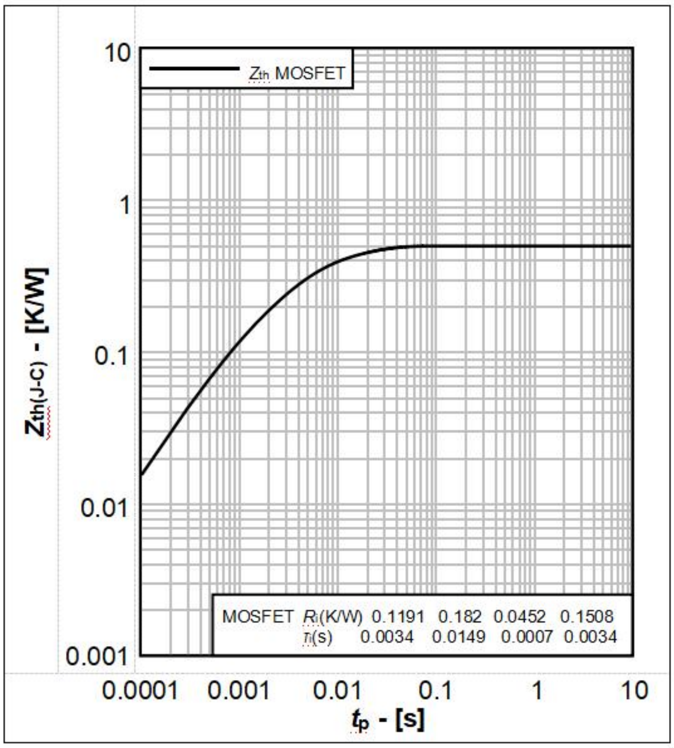


图 11. 开关损耗典型曲线, E_{on}= f (R_G), E_{off}= f (R_G) , E_{rec}= f (R_G)

Fig.11 Typical switching energy, E_{on}= f(R_G), E_{off}= f (R_G) , E_{rec}= f (R_G)

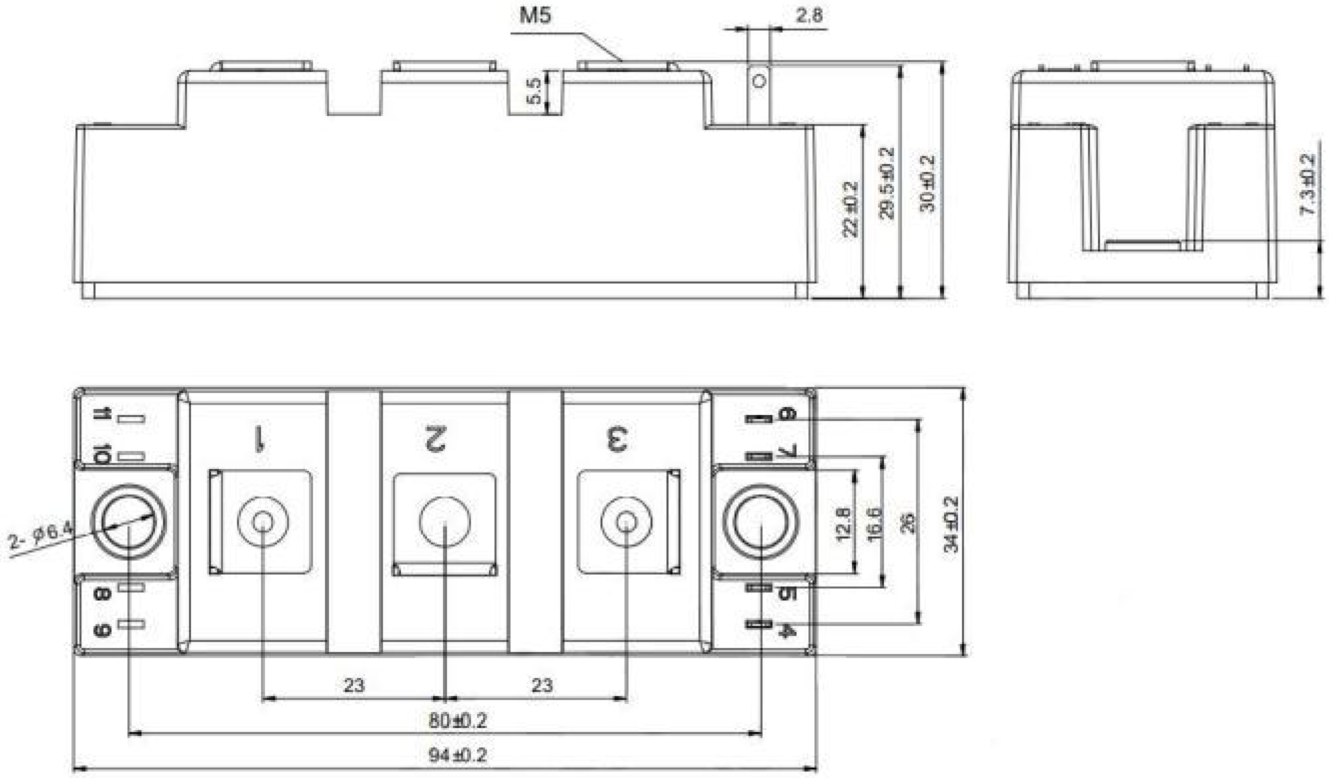


MOSFET				
R_i(K/W)	0.1191	0.182	0.0452	0.1508
τ_i(s)	0.0034	0.0149	0.0007	0.0034

图 12. 瞬态热阻抗曲线, $Z_{th(J-C)}$ = f (t_p)

Fig.12 Transient thermal impedance, $Z_{th(J-C)}$ = f (t_p)

Package Dimensions: 34MM



Dimensions in (mm)
Figure 13 Package Outline