ANC013P120ST

Silicon Carbide Power MOSFET
N- Channel Enhancement Mode

Key Parameters

V_{DS}	1200 V
I_D @ 25°C	60 A
$R_{DS(on)}$	13mΩ

Features 产品特征

- 高开关频率 High Switching Frequency
- 低开关损耗 Low Switching Loss
- 软、快速开关 Soft, fast Switching
- 易并联使用 Easy Paralleling

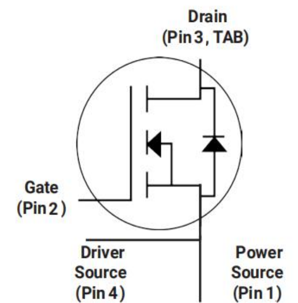
Benefits

- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

Applications

- Solar Inverters
- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- Motor Drivers
- Pulsed Power Applications

Package



Part Number	Package
ANC013P120ST	SOT-227

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		1200	V
V_{GSS}	栅源峰值电压 Gate-source voltage		-5/+18	V
I_D	持续正向电流，由 $T_{vj\,max}$ 限制 Continuous forward current, limited by $T_{vj\,max}$		60	A
I_{DM}	最大重复正向电流，由 $T_{vj\,max}$ 限制 Maximum repetitive forward current , limited by $T_{vj\,max}$		120	A
$T_{vj\,max}$	最大允许结温 Max. Junction temperature		175	°C

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$T_{vj(op)}$	工作结温 Operation junction temperature		-55...+175	°C
T_{Proc}	最大加工温度 Maximum processing temperature	最长持续时间 10min 10min, maximum	325	°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}			10	uA
I_{GSS}	栅极漏电流 Gate leakage current	V_{GS} = V_{GSS}, V_{DS} = 0V			100	nA
$V_{GS(th)}$	栅极-源极阈值电压 Gate threshold voltage	I_D = 10 mA, V_{GS} = V_{DS}	1.8	2.4	3.0	V
$R_{DS(on)}$	漏极-源极通态电阻 Drain-source on-state resistance	V_{GS} =15V, I_D = 60A		13		m
		V_{GS} =15V, I_D = 60A, T_{vj} = 175 °C		20		m
g_{fs}	跨导 Forward transconductance	V_{DS} =20V, I_D = 60A		23		S
C_{iss}	输入电容 Input capacitance	V_{DS} = 1000V, V_{GS} = 0V, f = 100kHz, V_{AC} = 30mV		4050		pF
C_{oss}	输出电容 Output capacitance			195		pF
C_{rss}	反向传输电容 Reverse transfer capacitance			20		pF
E_{oss}	电容存储能量 C_{oss} Stored Energy			230		pJ
R_{Gint}	内部栅极电阻 Internal gate resistor			4		
Q_{gs}	栅源电荷 Gate to source charge	I_D =60A, V_{DS} = 800V, V_{GS} = -4/+15V		57		nC
Q_{gd}	栅漏电荷 Gate to drain charge			80		nC
Q_g	总栅极电荷 Total gate charge			178		nC
V_{SD}	二极管正向电压 Diode forward voltage	I_{SD} = 30A, V_{GS} = -4V		5.0		V
		I_{SD} = 30A, V_{GS} = -4V, T_{vj} = 175 °C		4.6		V

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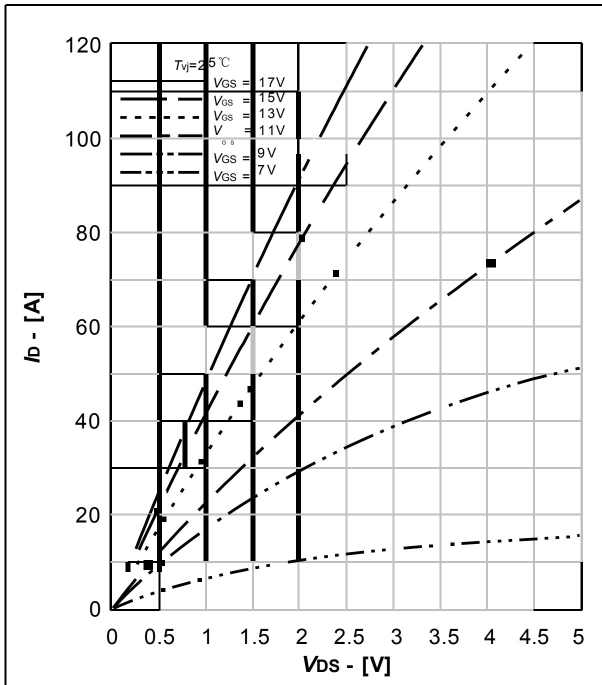

图 2. 输出特性典型曲线, I_D= f (V_{DS}), T_{vj} = 25 °C

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

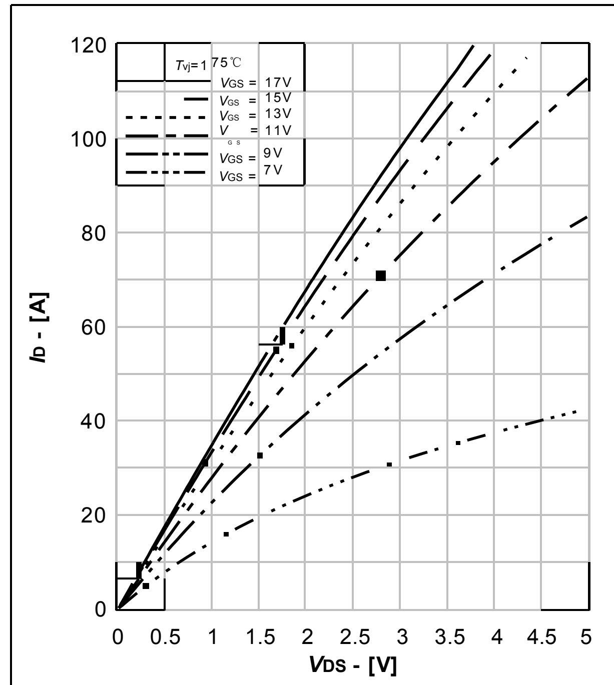

图 3. 输出特性典型曲线, I_D= f (V_{DS}), T_{vj} = 175 °C

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

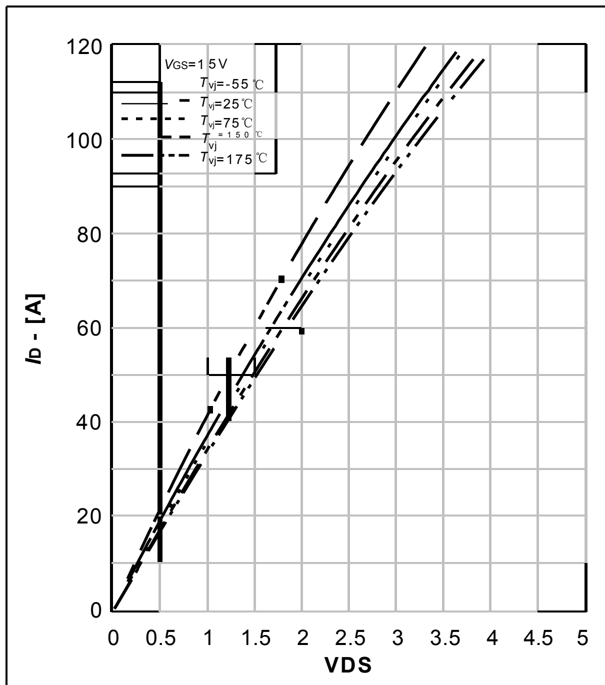

图 4. 输出特性典型曲线, I_D= f (V_{DS})

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

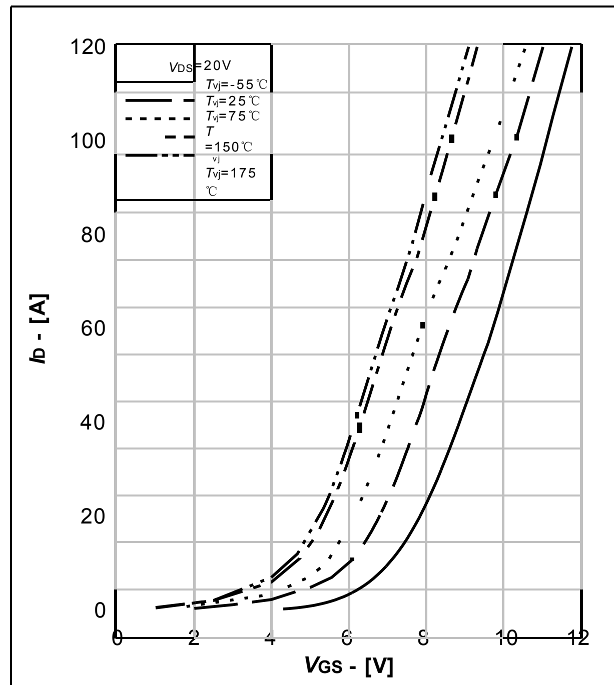

图 5.传输特性典型曲线,I_D= f (V_{GS})

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

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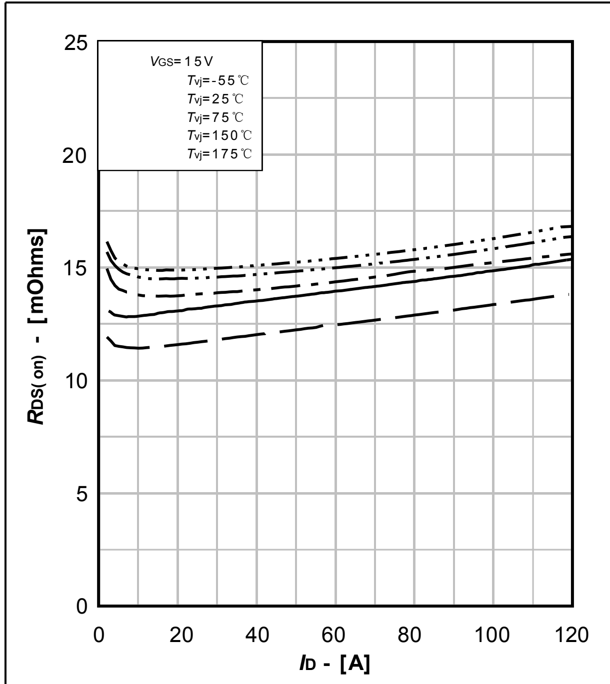

图 6. 导通电阻典型曲线, $R_{DS(on)}$ = f (I_D)

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

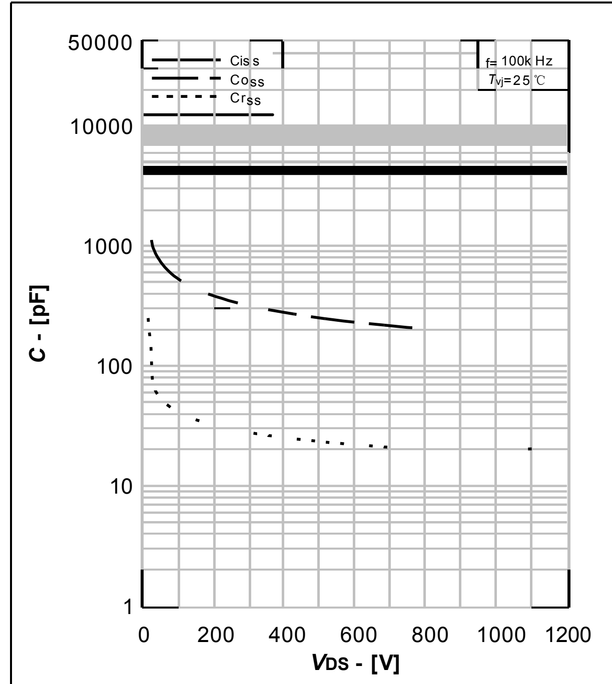

图 7. 电容特性典型曲线, C= f (V_{DS})

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

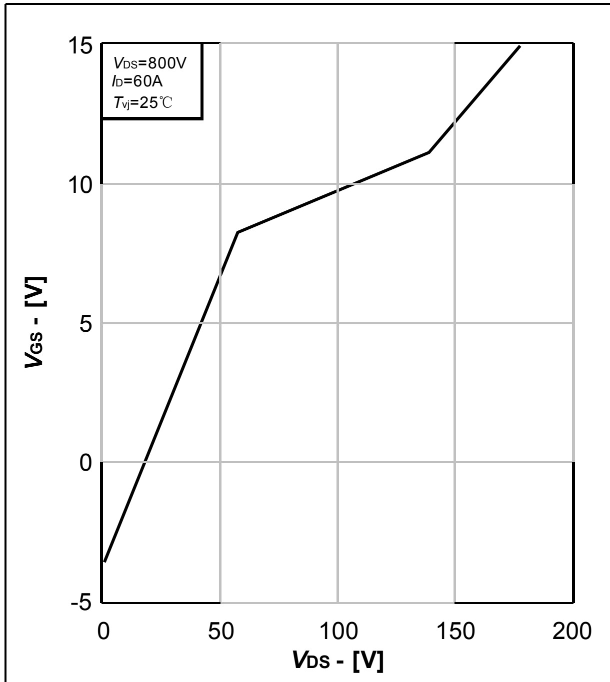

图 8. 栅极电荷特性典型曲线, V_{GS} = f (Q_G)

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

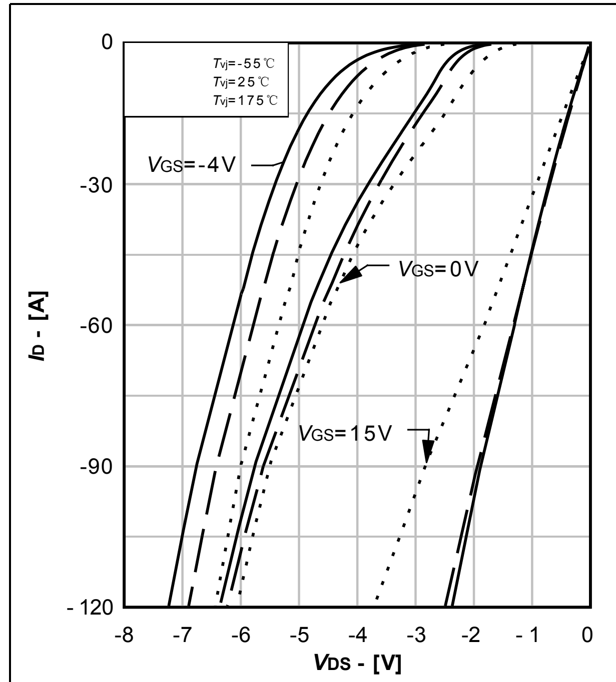

图 9. 体二极管及第三象限输出特性典型曲线, I_D = f (V_{DS})

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

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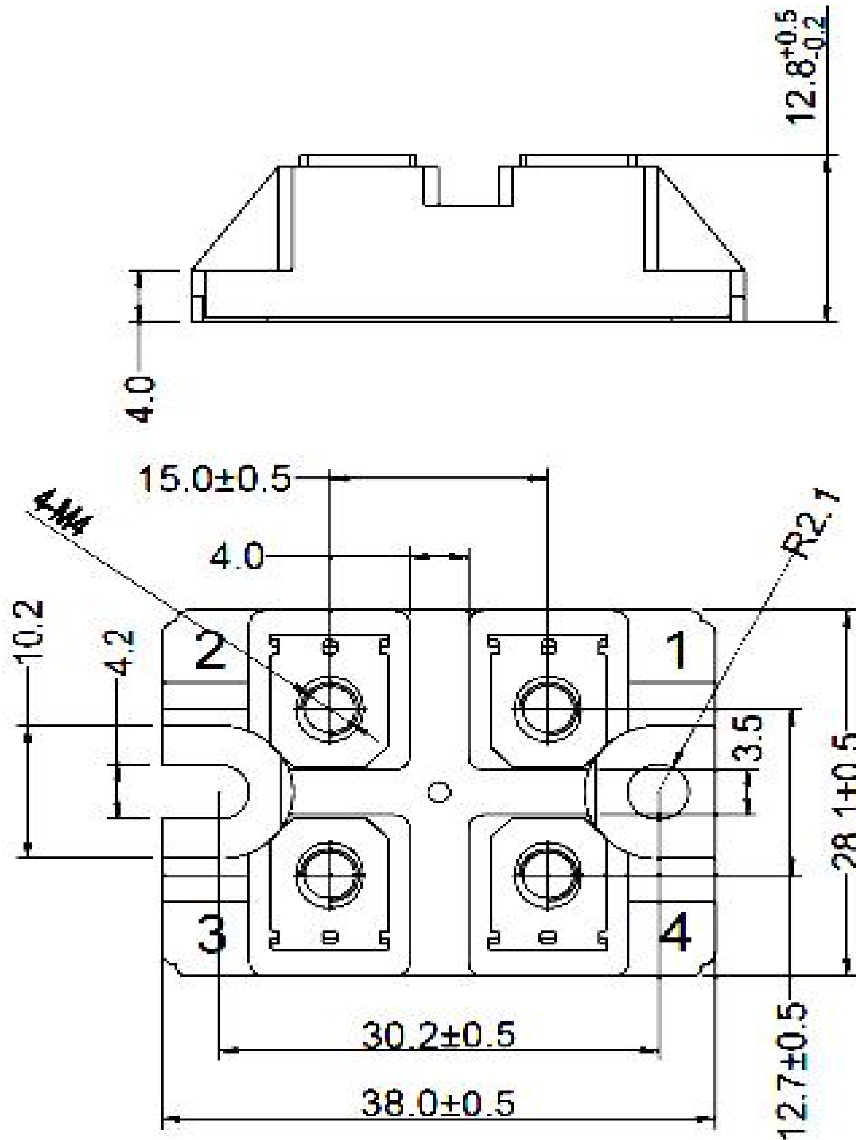
Package Dimensions: S O T - 2 2 7



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