

HD030N065H6Q

650V-30A Silicon Carbide Schottky Diode

Product features/产品特点

- Top side cooling technology
顶部散热技术
- Low Forward Voltage Drop
正向压降 (V_F) 低
- High-Speed Switching
高速开关特性
- Positive Temperature Coefficient on V_F
 V_F 正温度系数
- Temperature-Independent Switching Behavior
开关特性与温度无关
- Halogen free, RoHs compliant
无卤, 符合RoHs

Applications/应用领域

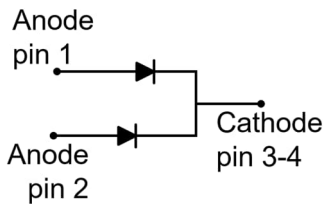
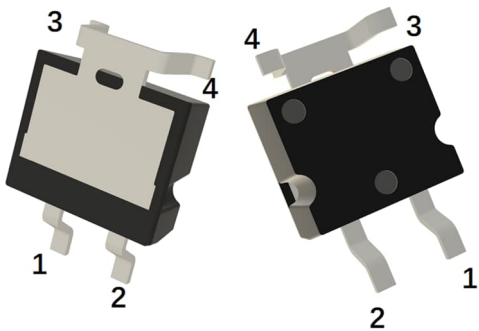
- Power Factor Correction
功率因数校正 (PFC)
- Switch Mode Power Supplies
开关电源, SMPS)
- Uninterruptible Power Supply
不间断电源 (UPS)

Key performance parameters/关键性能参数

Parameter/参数	Value/值	Unit/单位
V_{RRM}	650	V
I_F	30	A
$V_{F,typ}$	1.43	V

Package parameters/封装信息

Type/型号	Package/封装	Marking/标识	Packaging method/包装方式
HD030N065H6Q	TSC263-4L	HD030N065Q	800pcs-Tape&Reel/卷带包装(单卷800颗)



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1. Maximum ratings at $T_J=25^{\circ}\text{C}$, unless otherwise specified.

最大额定值 默认 $T_J=25^{\circ}\text{C}$ 除非另有说明

Table 1 Maximum ratings/最大额定值

Parameter 参数	Symbol 符号	Test conditions 测试条件	Value 值	Unit 单位
Repetitive peak reverse voltage 重复峰值反向电压	V_{RRM}		650	V
Crest working reverse voltage 最高工作反向电压	V_{RWM}		650	V
Average Forward Current 平均正向电流	$I_{F,AV}$	$T_C=25^{\circ}\text{C}$	64	A
		$T_C=125^{\circ}\text{C}$	32	
		$T_C=142^{\circ}\text{C}$	30	
Non-Repetitive Forward Surge Current 非重复正向浪涌电流	$I_{F,SM}^1$	$T_C=25^{\circ}\text{C}, t_p=10\text{ms}$, Half Sine Wave	190	A
		$T_C=125^{\circ}\text{C}, t_p=10\text{ms}$, Half Sine Wave	170	
Power dissipation 总耗散功率	P_{tot}	$T_C=25^{\circ}\text{C}$	150	W
		$T_C=100^{\circ}\text{C}$	75	

1: After test: $V_F \geq 0.5\text{V}$ @ $I_F=1\text{mA}$; $V_R \geq 500\text{V}$ @ $I_R=1\text{mA}$; $I_R \leq 5\text{mA}$ @ $V_R=650\text{V}$



2. Thermal characteristics
热特性

Table 2 Thermal characteristics/热特性

Parameter 参数	Symbol 符号	Test conditions 测试条件	Value/值			Unit 单位
			Min.	Typ.	Max.	
Storage temperature 存储温度	T _{stg}		-55		175	°C
Operating junction temperature 工作结温	T _j		-55		175	°C
Thermal resistance, junction-case 结-壳热阻	R _{th(j-c)}				1.0	°C/W
Thermal resistance, junction-ambient 结-环境热阻	R _{th(j-a)}			29		°C/W
Soldering temperature, reflow solderin 焊接温度，回流焊	T _{sold}	reflow MSL1			260	°C

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3. Electrical characteristics at $T_J=25^{\circ}\text{C}$, unless otherwise specified. Electrical Characteristics per Diode Chip.

电气特性 默认 $T_J=25^{\circ}\text{C}$ 除非另有说明，以下参数均基于单颗二极管芯片。

Table 3 Static characteristics/静态特性

Parameter 参数	Symbol 符号	Test conditions 测试条件		Value/值			Unit 单位
				Min.	Typ.	Max.	
DC blocking voltage 直流阻断电压	V_{DC}	$I_R=10\mu\text{A}$		650			V
Forward voltage 正向压降	V_F	$I_F=30\text{A}$	$T_J=25^{\circ}\text{C}$		1.43	1.6	V
			$T_J=125^{\circ}\text{C}$		1.75		
			$T_J=175^{\circ}\text{C}$		2.05		
Reverse leakage current 反向漏电流	I_R	$V_R=650\text{V}$	$T_J=25^{\circ}\text{C}$		0.01	5	μA
			$T_J=125^{\circ}\text{C}$		0.04		
			$T_J=175^{\circ}\text{C}$		0.68		

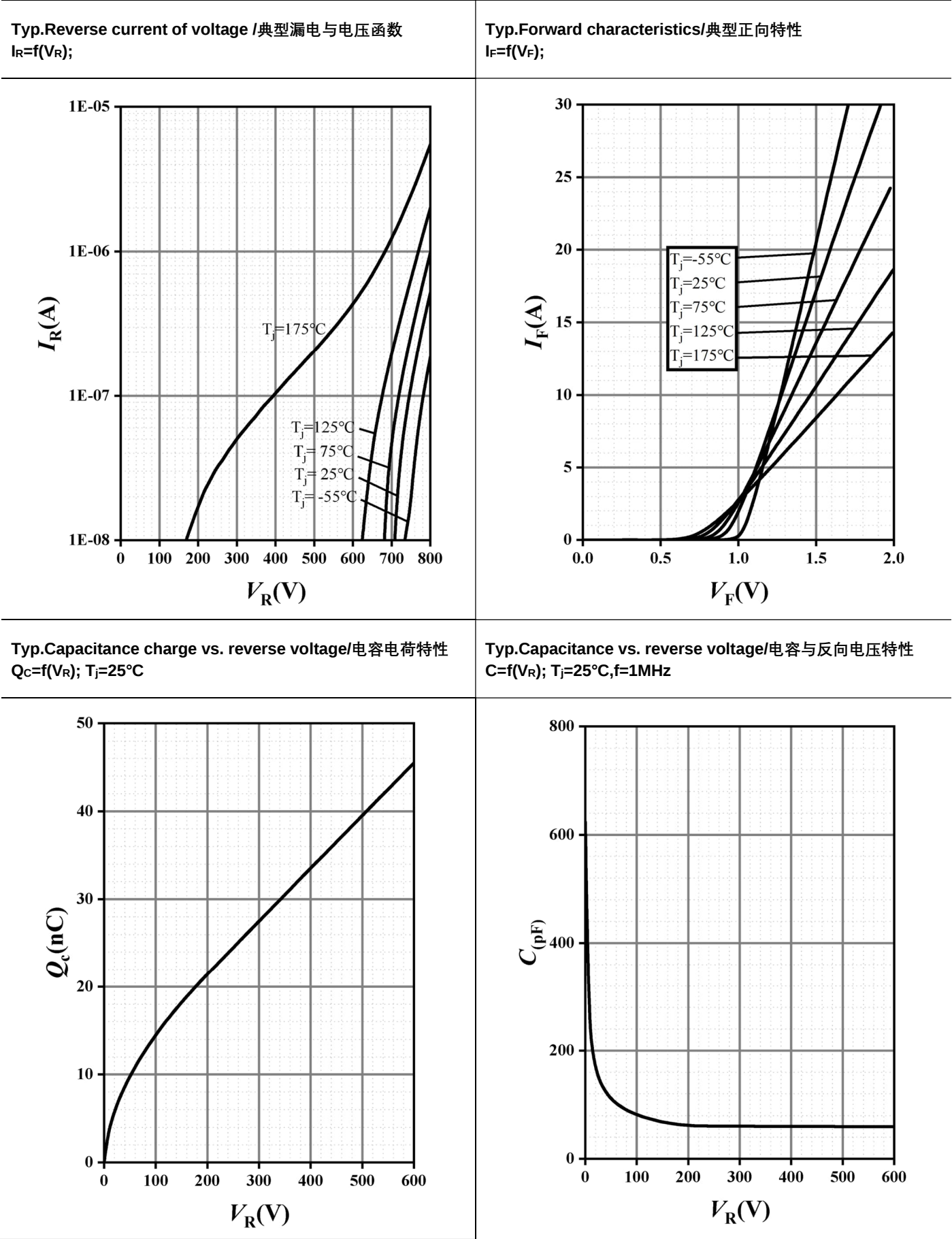
Table 4 Dynamic characteristics/动态特性

Parameter 参数	Symbol 符号	Test conditions 测试条件		Value/值			Unit 单位
				Min.	Typ.	Max.	
Total capacitive charge 总电容电荷	Q_C	$V_R=400\text{V}$			34		nC
Total capacitance 总电容	C	$f=1\text{MHz}, V_R=0\text{V}$			624		pF
		$f=1\text{MHz}, V_R=200\text{V}$			62		
		$f=1\text{MHz}, V_R=400\text{V}$			60		
Capacitance stored energy 电容存储能量	E_C	$V_R=400\text{V}$			5.2		μJ



4. Electrical characteristics diagrams Electrical Characteristics per Diode Chip.

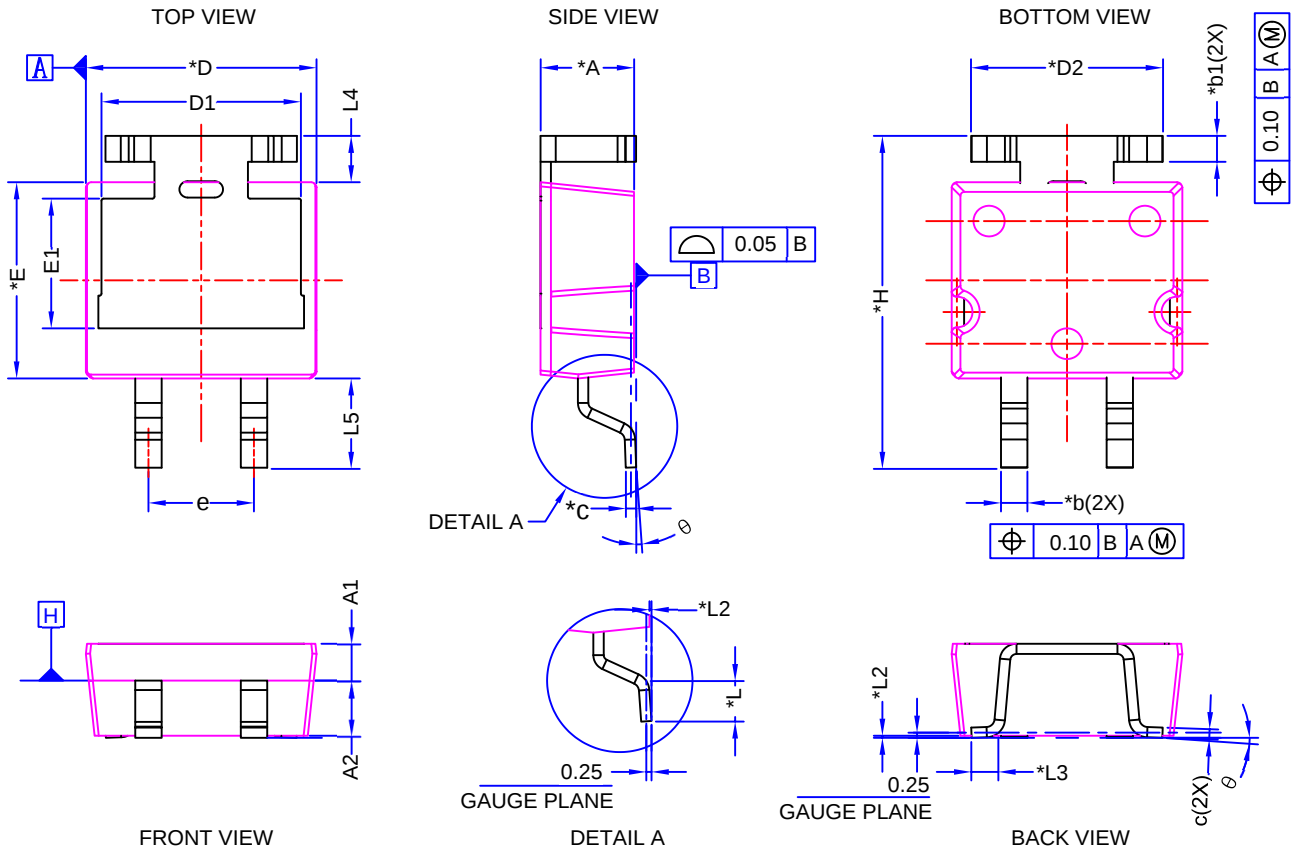
电气特性图表 以下参数均基于单颗二极管芯片。



5. Package outline

封装外形

Figure 1. Outline TSC263-4L, dimensions in mm/TSC263-4L外形尺寸 (毫米)



DIM SYMBOL	MIN.	TYP.	MAX.	DIM SYMBOL	MIN.	TYP.	MAX.
*A	4.40	4.50	4.60	*E	9.45	9.60	9.75
A1	1.75	1.80	1.85	E1	6.15	6.35	6.55
A2	2.65	2.70	2.75	e	5.08 BSC		
*b	1.22	1.27	1.32	*H	16.02	16.22	16.42
*b1	1.22	1.27	1.32	*L	1.70	1.90	2.10
*c	0.45	0.50	0.55	*L2	0.05	0.10	0.15
*D	10.95	11.10	11.25	*L3	1.10	1.30	1.50
D1	9.50	9.60	9.70	L4	2.27 REF		
*D2	9.00	9.20	9.40	L5	4.15	4.35	4.55
				Θ	0°	-	8°

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETER. ANGLES ARE IN DEGREE.
- DIMENSION "D" DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS. INTERLEAD FLASH SHALL NOT EXCEED 0.150 MM PER SIDE. DIMENSION "E" DOES NOT INCLUDE MOLD FLASH, GATE BURRS, THE GATE BURRS SHALL NOT EXCEED 0.15MM.
- DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.

注:

- 所有尺寸均以毫米为单位。角度以度为单位。
- 尺寸 D 不包括引脚间飞边或突出物。引脚间飞边在每侧不得超过0.15mm。尺寸 E 不包括模具飞边、浇口残余物，浇口残余物不得超过0.15mm。
- 尺寸 D、E 是在塑胶本体的最外极限确定的，不包括模具飞边、连接条残余、浇口残余和引脚间飞边，但包括塑胶本体顶部和底部之间可能存在的任何不匹配或错位。



7. Revision history

修订历史

Table 5 Date and version number/日期与版本号

Date日期	Revision版本	Changes更改内容
2026-08-12	Rev. G 1.0	Target Datasheet (目标规格书)

8. Matters needing attention

注意事项

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