

BRCS4354SC

Rev.C Aug.-2023

DATA SHEET

描述 / Descriptions

SOP-8 塑封封装 N 沟道 MOS 场效应管。
 N-Channel MOSFET in a SOP-8 Plastic Package.

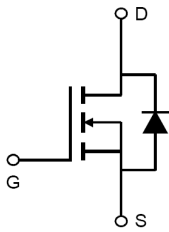
特征 / Features

$V_{DS}=30V$ $I_D=23A(V_{GS}=\pm 20V)$
 $R_{DS(ON)}@10V \leq 5.5m\Omega$ (Typ. 4.3m Ω)
 $R_{DS(ON)}@4.5V \leq 7.0m\Omega$ (Typ. 5.5m Ω)
 无卤产品。HF Product.

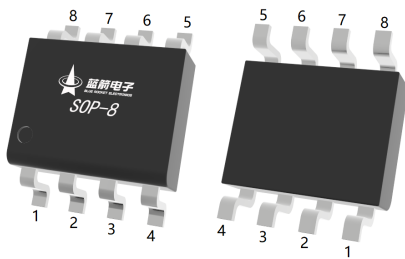
用途 / Applications

DC/DC 和 AC/DC 转换器的同步整流，隔离直流/直流转换器在电信和工业。
 Synchronous Rectification in DC/DC and AC/DC Converters, Isolated DC/DC Converters in Telecom and Industrial.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : S	PIN 2 : S	PIN 3 : S	PIN 4 : G
PIN 5 : D	PIN 6 : D	PIN 7 : D	PIN 8 : D

印章代码 / Marking

见印章说明。
 See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	23	A
Pulsed Drain Current ^①	I _{DM}	120	A
Avalanche Current	I _{AS}	30	A
Avalanche energy	E _{AS}	70	mJ
Power Dissipation	P _D	5	W
Operating and Junction Temperature Range	T _j T _{stg}	-55~+150	°C
Thermal resistance, junction - ambient	R _{θJA}	75	°C/W
Thermal resistance, junction - case	R _{θJC}	25	°C/W

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V V _{GS} =0V			1.0	μA
Gate-Body Leakage Current Forward	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250μA	1.2	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =20A		4.3	5.5	mΩ
		V _{GS} =4.5V I _D =12A		5.5	7	
Forward Transconductance	g _{FS}	V _{DS} =25V I _D =10A		30		S
Diode Forward Voltage	V _{SD}	I _S =1A V _{GS} =0V		0.7	1.2	V

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1.0MHz		4000		pF
Output Capacitance	C _{oss}			420		
Reverse Transfer Capacitance	C _{rss}			280		
Gate resistance	R _g	f=1.0MHz		0.55		Ω
Total Gate Charge(10V)	Q _{g(10V)}	V _{GS} =10V I _D =20A V _{DS} =15V		36	49	nC
Total Gate Charge(4.5V)	Q _{g(4.5V)}			17	23	
Gate-Source Charge	Q _{gs}			6		
Gate-Drain Charge	Q _{gd}			8		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V V _{DS} =15V R _L =0.75Ω R _{GEN} =3.0Ω		7.5		ns
Turn-On Rise Time	t _r			4.0		
Turn-Off Delay Time	t _{d(off)}			37.0		
Turn-Off Fall Time	t _f			7.5		
Body Diode Reverse Recovery Time	t _{rr}	I _F =20A di/dt=500A/μs		14		ns
Body Diode Reverse Recovery Charge	Q _{rr}			20.3		nC

Note: ① Pulse Test : Pulse width ≤ 300 μs, Duty cycle ≤ 2% ;

电参数曲线图 / Electrical Characteristic Curve

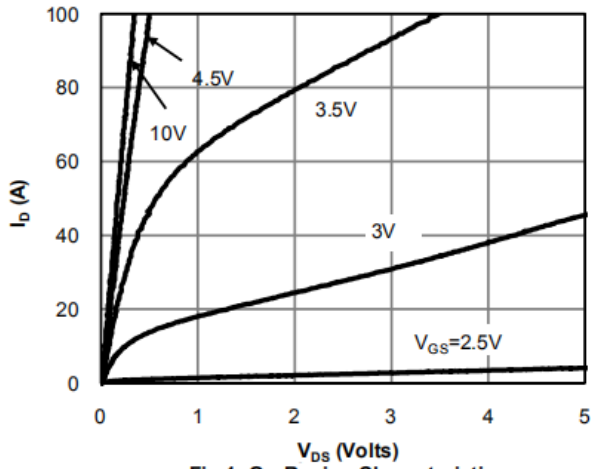


Fig 1: On-Region Characteristics

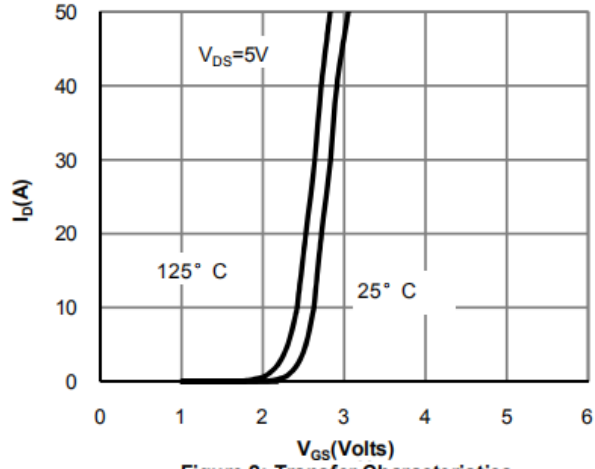


Figure 2: Transfer Characteristics

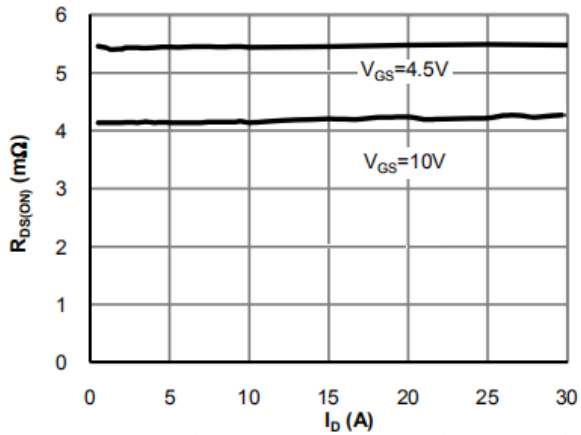


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

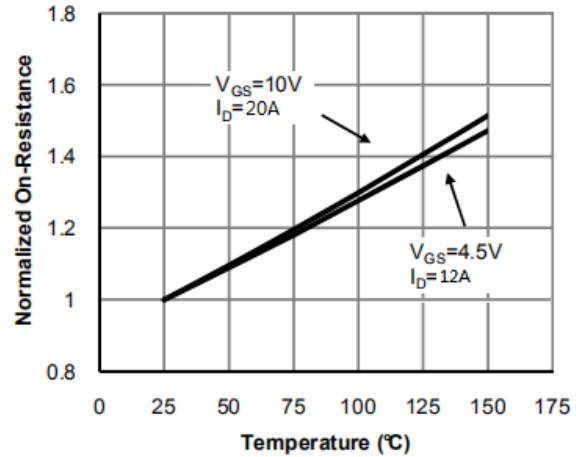


Figure 4: On-Resistance vs. Junction Temperature

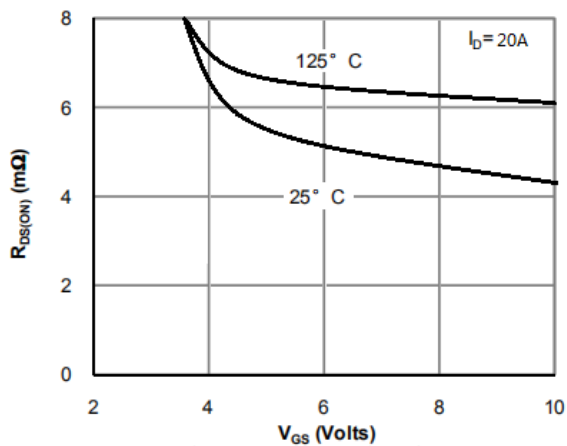


Figure 5: On-Resistance vs. Gate-Source Voltage

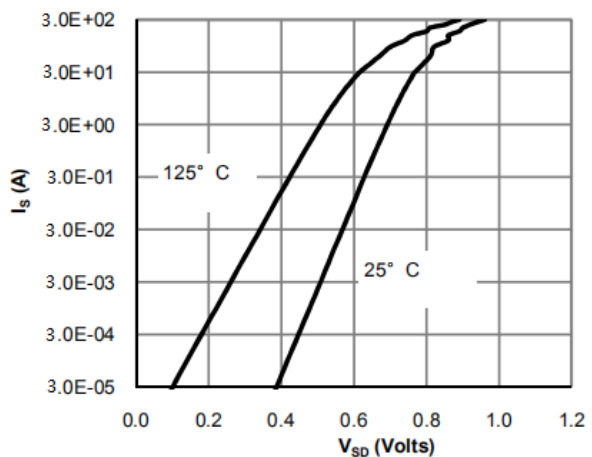


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

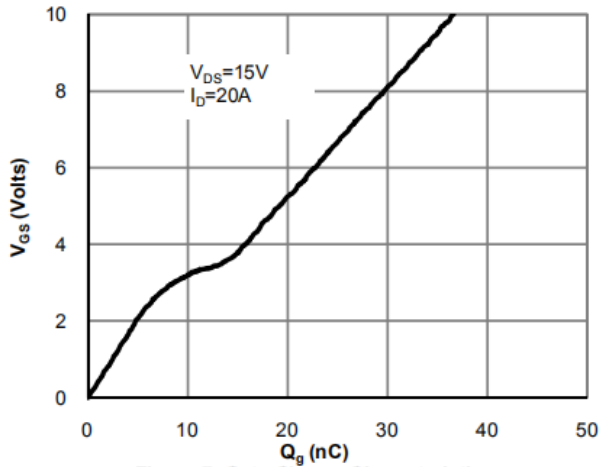


Figure 7: Gate-Charge Characteristics

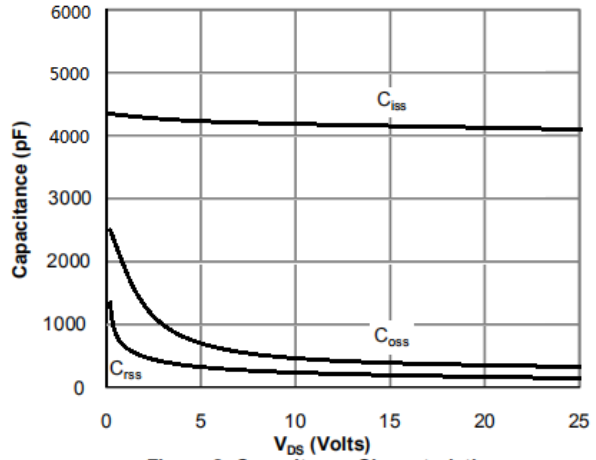


Figure 8: Capacitance Characteristics

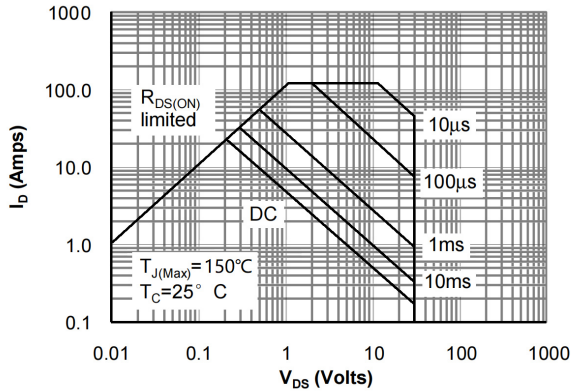


Figure 9: Maximum Forward Biased Safe Operating Area

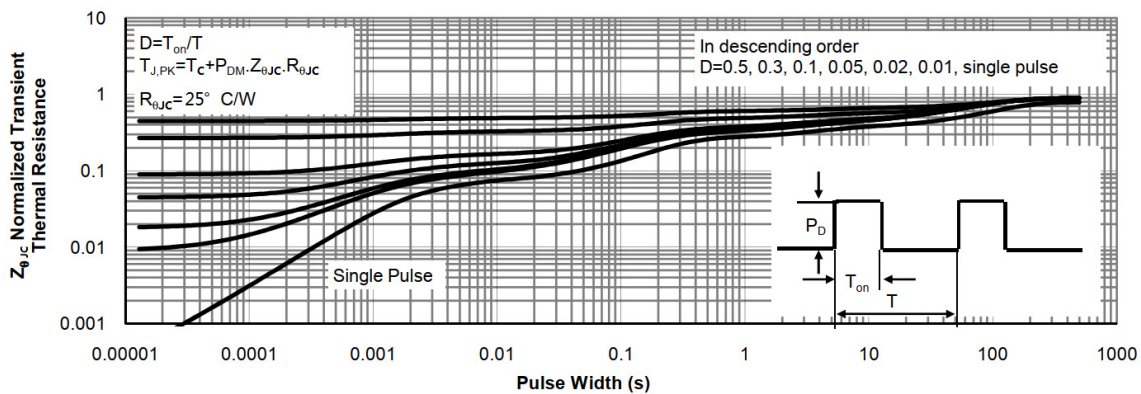
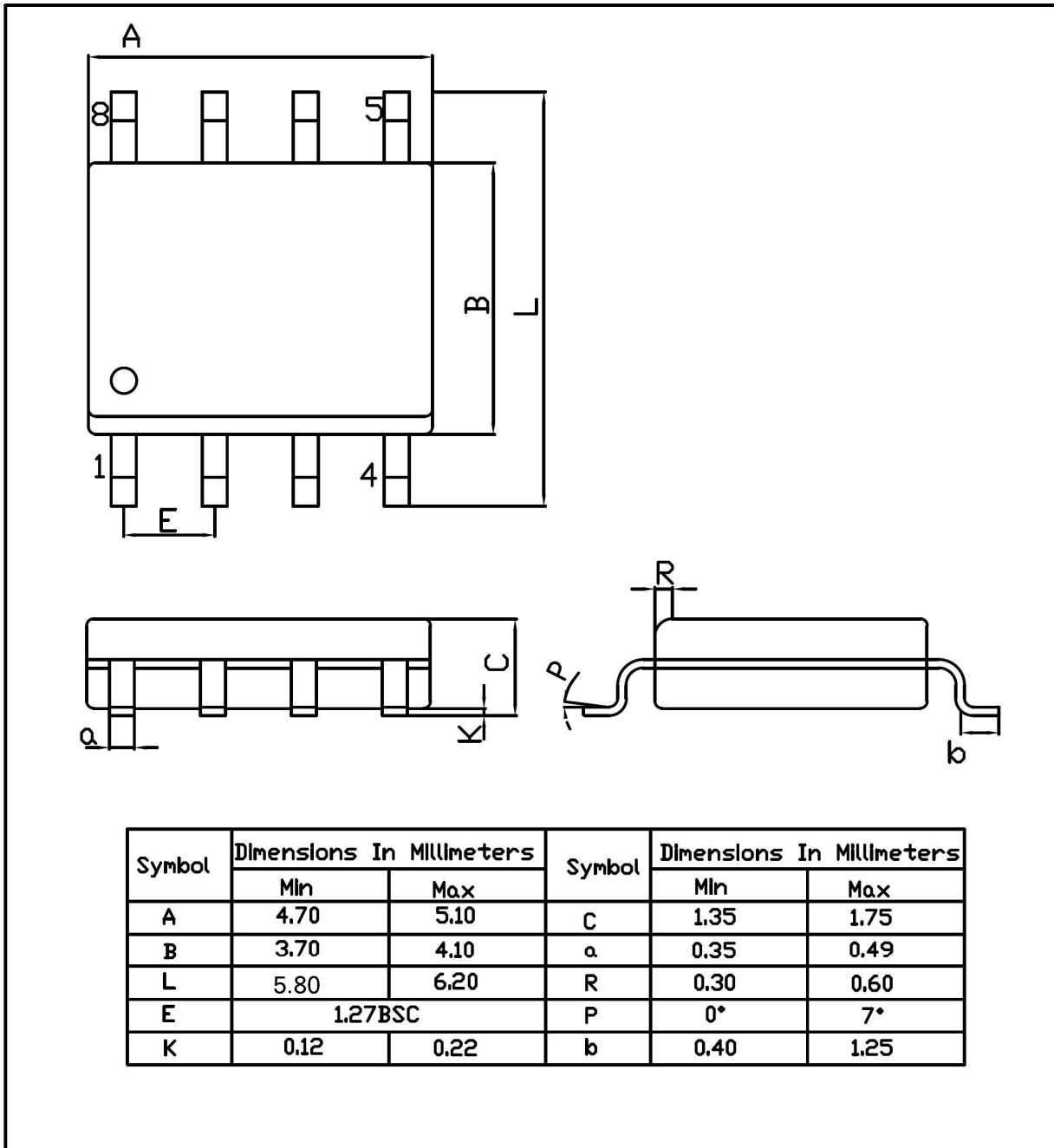


Figure 10: Normalized Maximum Transient Thermal Impedance

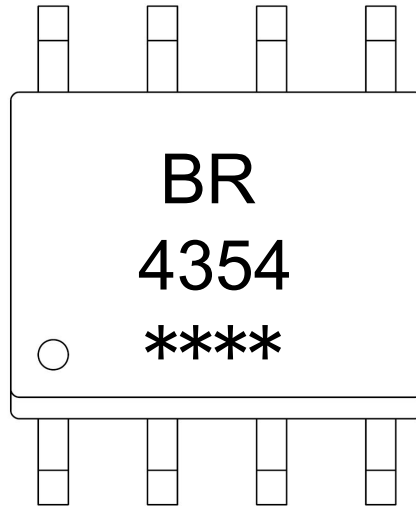
外形尺寸图 / Package Dimensions

SOP-8

Unit:mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

4354： 为型号代码

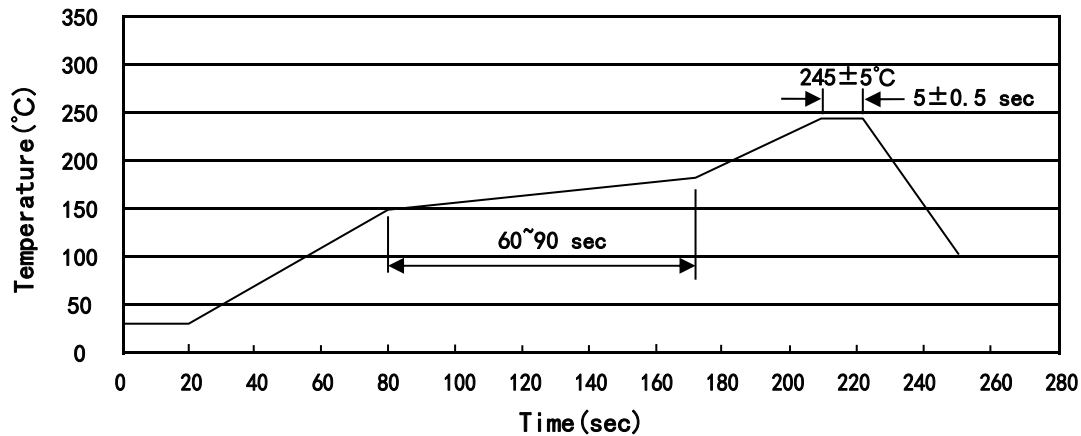
****： 为生产批号代码，随生产批号变化

Note:

BR: Company Code.

4354: Product Type.

****: Lot No. Code, code change with Lot No.

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)


说明：

- 1、预热温度 150~180°C，时间 60~90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOP/ESOP-8	4,000	2	8,000	6	48,000	13" ×12	360×360×50	380×335×366

使用说明 / Notices