

BRCS4354SC

Rev.C Aug.-2023



DATA SHEET

SOP-8 N MOS

N-Channel MOSFET in a SOP-8 Plastic Package.

$V_{DS}=30V$ $I_D=23A(V_{GS}=\pm 20V)$

$R_{DS(ON)}@10V \leq 5.5m\Omega$ (Typ. 4.3m Ω)

$R_{DS(ON)}@4.5V \leq 7.0m\Omega$ (Typ. 5.5m Ω)

HF Product.

$Wq\% \quad f_{PD\Delta p,f}$

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	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	$T_C=25^\circ\text{C}$	P_D	5	W
Operating and Junction Temperature Range		T_j T_{stg}	$-55\sim+150$	
Thermal resistance, junction - ambient		$R_{\theta JA}$	75	/ W
Thermal resistance, junction - case		$R_{\theta JC}$	25	/ W

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	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}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	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	m Ω
		$V_{GS}=4.5V$ $I_D=12A$		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

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	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	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=0.75\Omega$ $R_{GEN}=3.0\Omega$		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}	$I_F=20A$ $di/dt=500A/\mu s$		14		ns
Body Diode Reverse Recovery Charge	Q_{rr}			20.3		nC

Note: ① Pulse Test : Pulse width $\leq 300 \mu s$, Duty cycle $\leq 2\%$;

/ Electrical Characteristic Curve

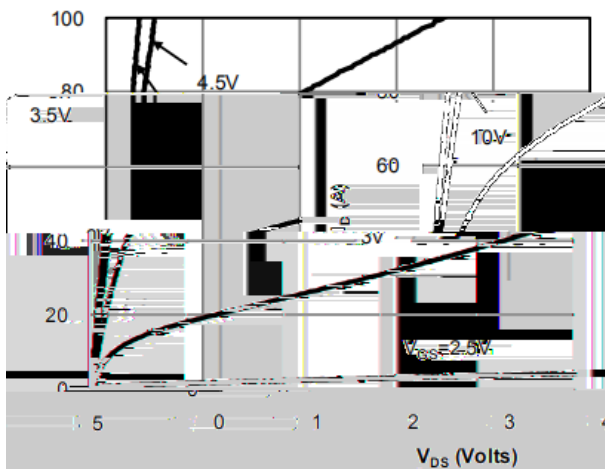


Fig 1: On-Region Characteristic Curves

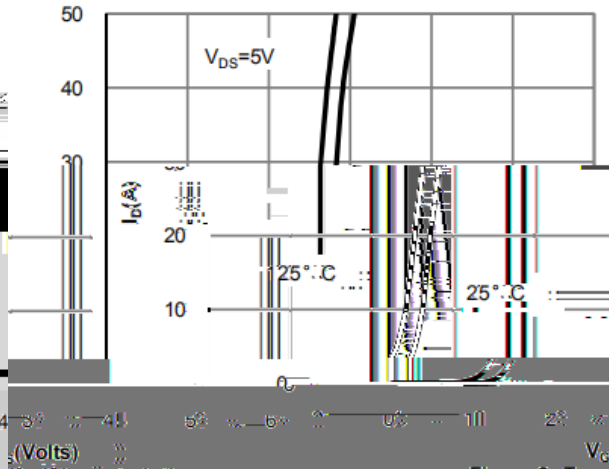


Figure 2: Transfer Characteristics

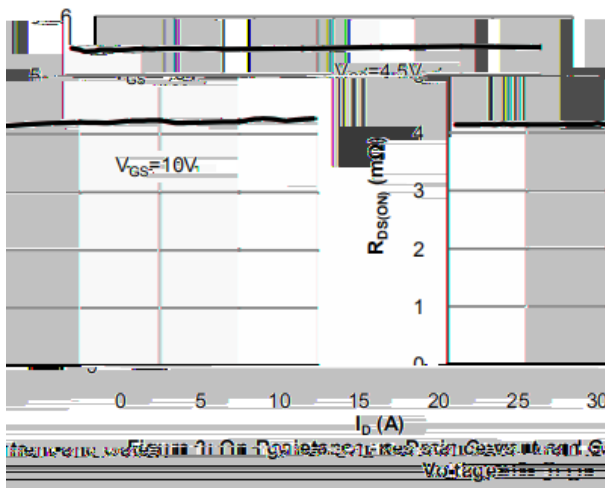


Figure 3: On-Resistance vs. Drain Current

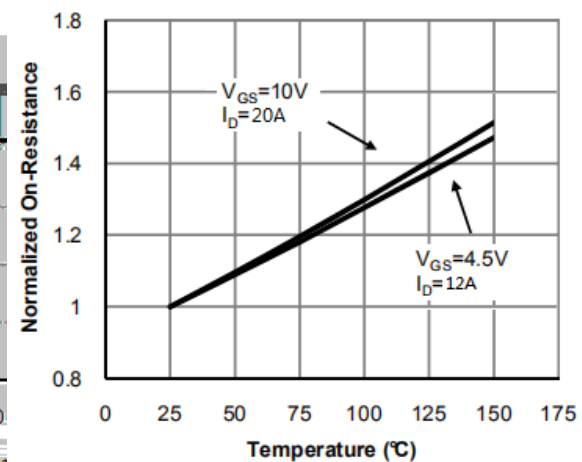


Figure 4: On-Resistance vs. Junction Temperature

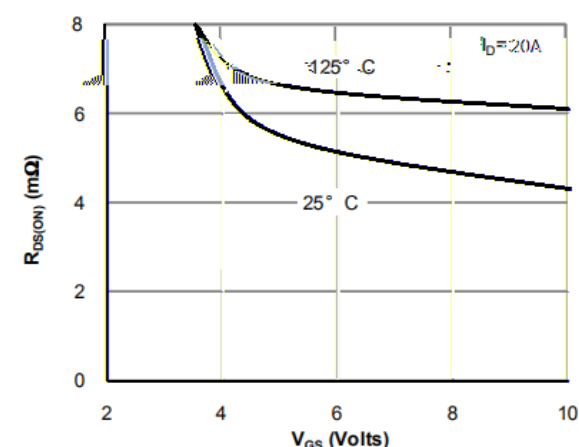


Figure 5: On-Resistance vs. Gate-Source Voltage

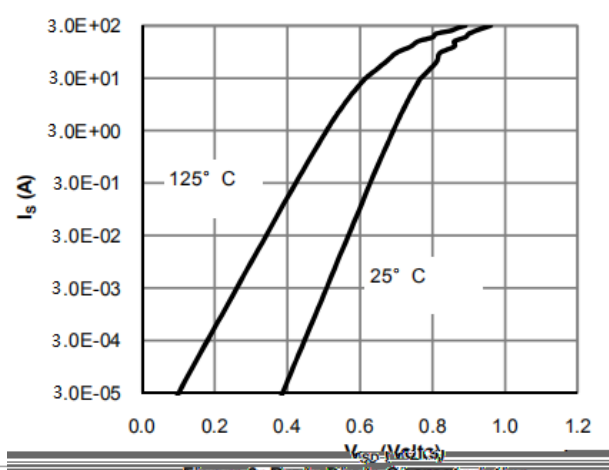
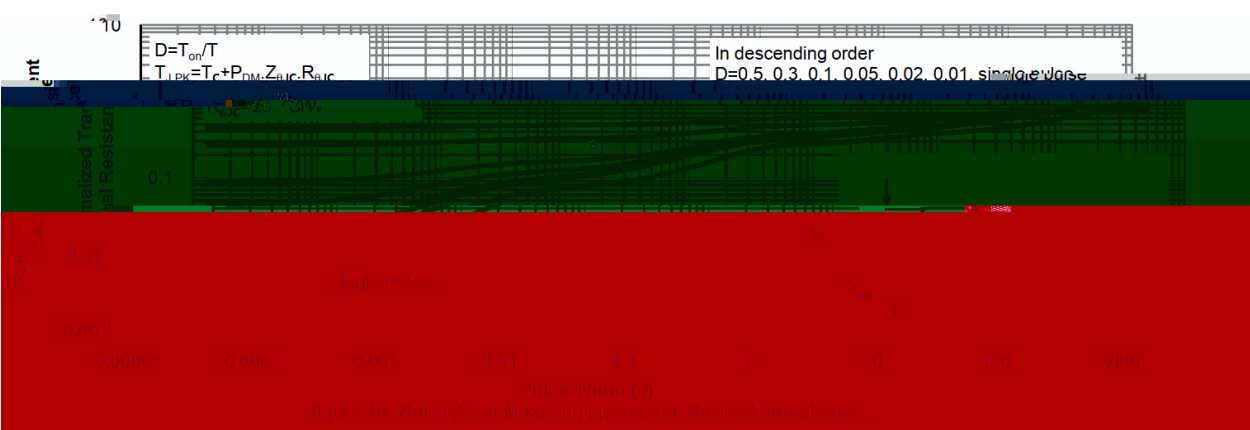
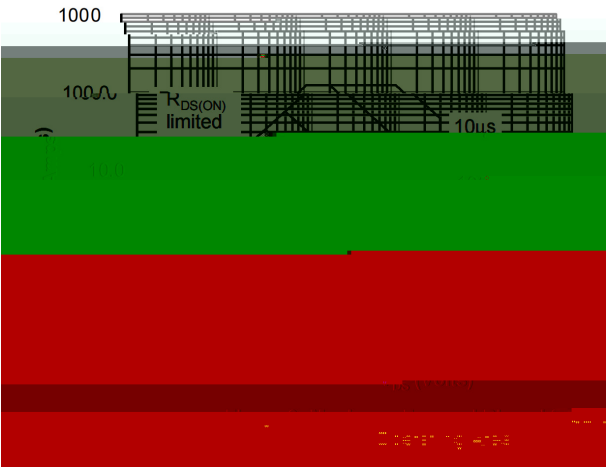
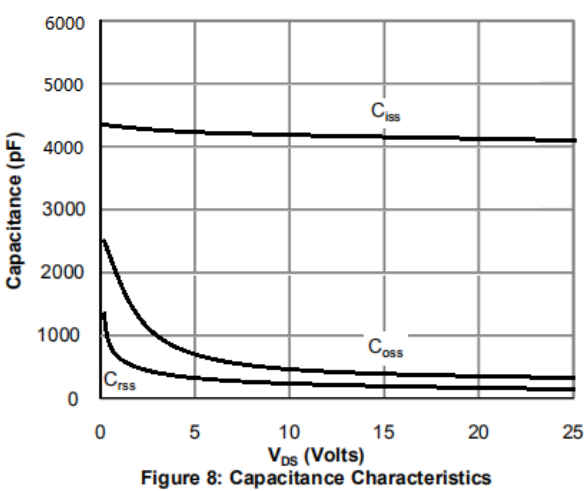
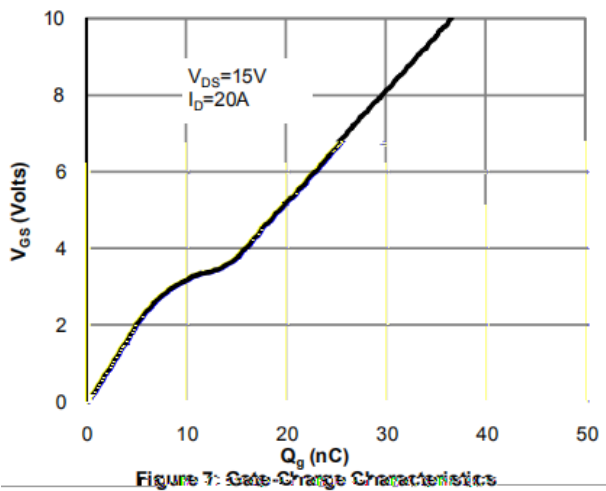
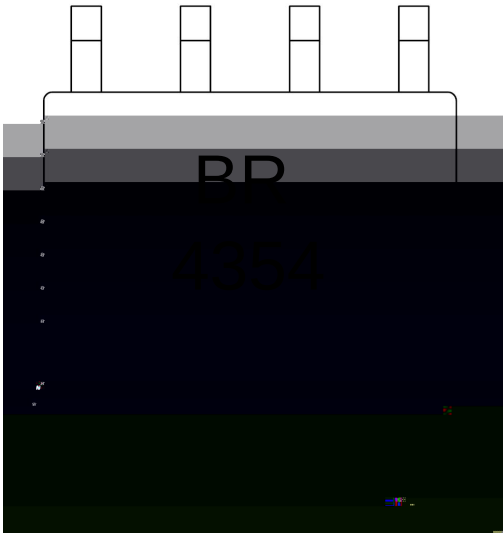


Figure 6: Reverse Diode Characteristics

/ Electrical Characteristic Curve



/ Marking Instructions



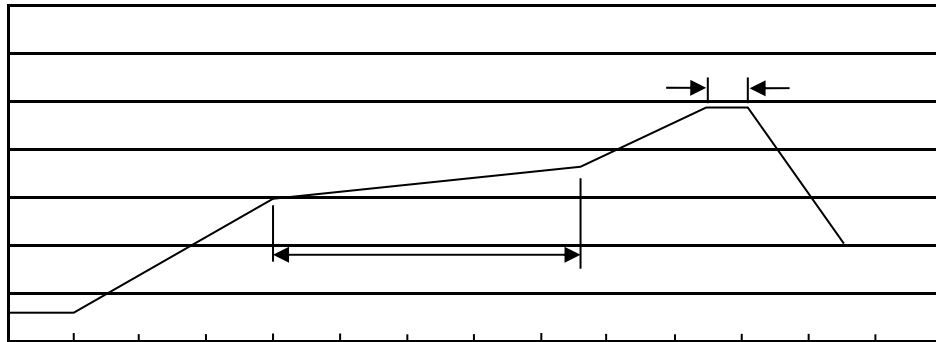
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Note:

BR:	Company Code.
4354	Product Type.
****:	Lot No. Code, code change with Lot No.

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

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

/ Resistance to Soldering Heat Test Conditions

260±5	10±1 sec.	Temp.:260±5	Time:10±1 sec
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/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
SOP/ESOP-8	4,000	2	8,000	6	48,000	13" ×12	360×360×50	380×335×366

/ Notices