

BRCS9926SC
Rev.I Mar.-2019

SOP-8 N Power Trench MOS

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current– Continuous ^(note 1a)	I_D	6.5	A
Drain Current–Pulsed		20	A
Power Dissipation for Dual Operation	P_D	2.0	W
Power Dissipation for Single Operation ^(note 1a)		1.6	W
Power Dissipation for Dual Operation ^(note 1b)		1.0	W
Power Dissipation for Single Operation ^(note 1c)		0.9	W
Thermal Resistance, Junction-to-Ambient ^(note 1a)	R_{JA}	78	$^{\circ}C/W$
Thermal Resistance, Junction-to case ^(note 1)	R_{JC}	40	$^{\circ}C/W$
Operating and Junction Temperature Range	T_j T_{stg}	-55 150	$^{\circ}C$

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250$ A	20			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250$ A Referenced to 25 $^{\circ}C$		14		mV/ $^{\circ}C$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V$ $V_{GS}=0V$			1.0	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 8.0V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250$ A	0.5	1.0	1.5	V
Gate Threshold Voltage Temperature Coefficient	$\Delta V_{GS(th)}/\Delta T_J$	$I_D=250$ A Referenced to 25 $^{\circ}C$		-3.0		mV/ $^{\circ}C$
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V$ $I_D=6.5A$		19	24	m
		$V_{GS}=4.5V$ $I_D=6.5A$ $T_J=125^{\circ}C$		27	34	
		$V_{GS}=2.5V$ $I_D=5.4A$		23	30	
On-State Drain Current	$I_{D(on)}$	$V_{DS}=5.0V$ $V_{GS}=5.0V$	15			A
Forward Transconductance	g_{FS}	$V_{DS}=5.0V$ $I_D=3.0A$		11		S

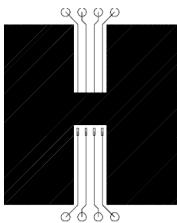
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0MHz$		700		pF
Output Capacitance	C_{oss}			175		
Reverse Transfer Capacitance	C_{rss}			85		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V$ $I_D=1.0A$ $R_{GEN}=6$ $V_{GS}=4.5V$		8	16	ns
Turn-On Rise Time	t_r			10	18	
Turn-Off Delay Time	$t_{d(off)}$			18	29	
Turn-Off Fall Time	t_f			5.0	10	
Total Gate Charge	Q_g	$V_{DD}=10V$ $I_D=3.0A$ $V_{GS}=4.5$		7.0	10	nC
Gate-Source Charge	Q_{gs}			1.2		
Gate-Drain Charge	Q_{gd}			1.9		
Maximum Continuous Drain-Source Diode Forward Current	I_S				1.3	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=1.3A$ (note2) $V_{GS}=0V$		0.65	1.2	V

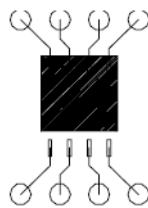
Notes:

1. R_{JA} is the sum of the junction-to-case and case-to-ambient resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. R_{JC} is guaranteed by design while R_{JA} is determined by the user's board design.

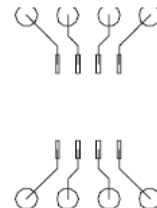
a) 78°C/W when mounted on a 0.5 in² pad of 2 oz. copper.



b) 125°C/W when mounted on a 0.02 in² pad of 2 oz. copper.



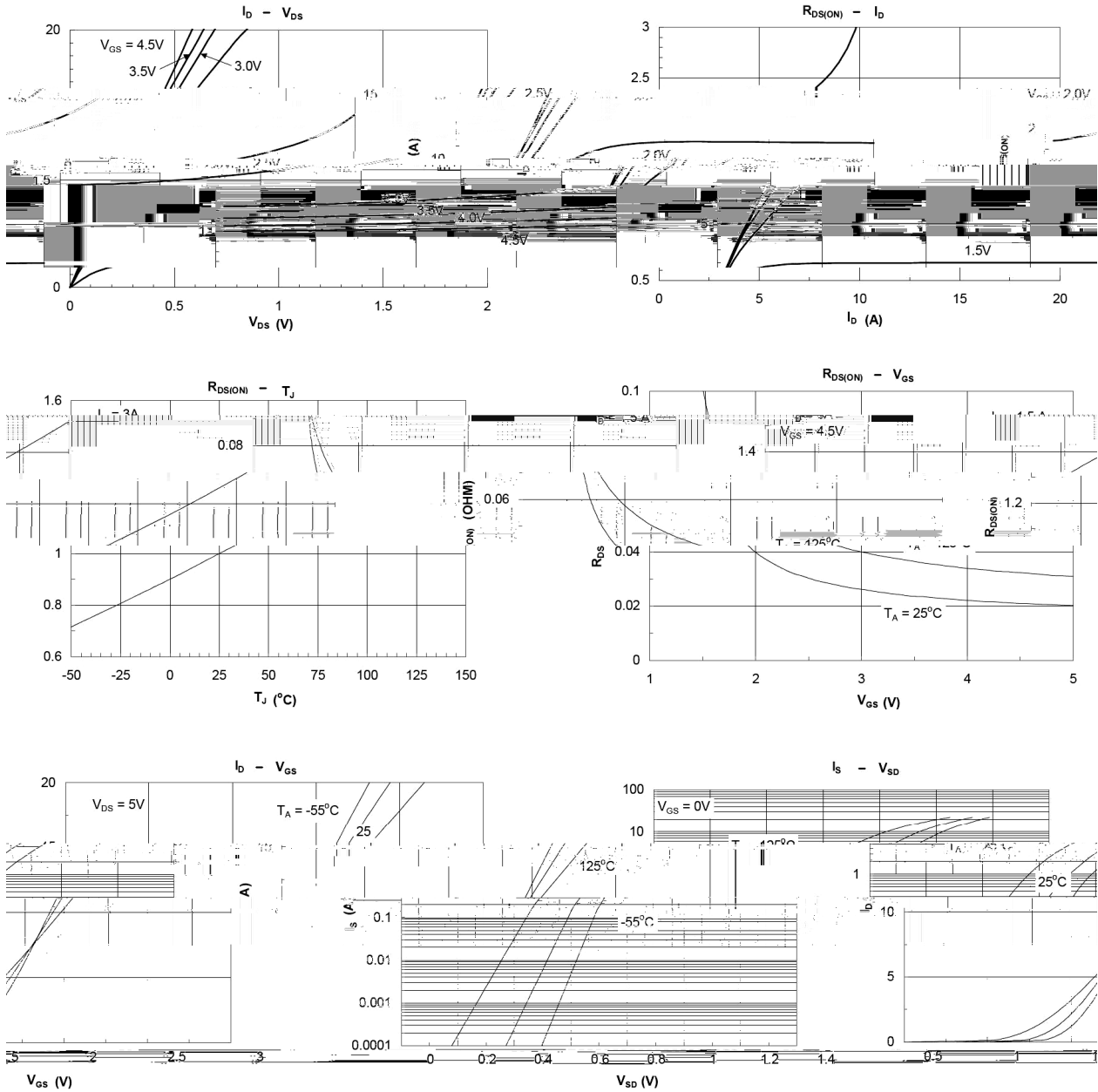
c) 135°C/W when mounted on a minimum pad.



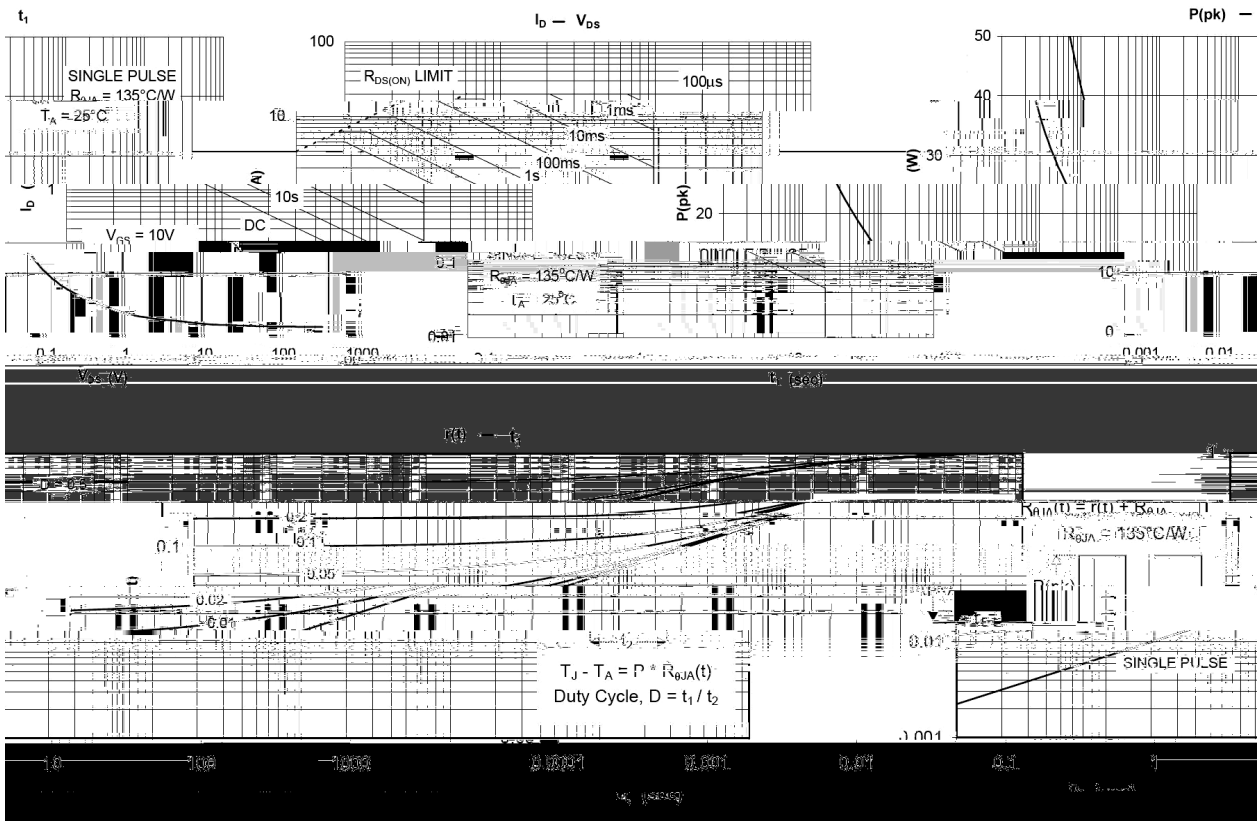
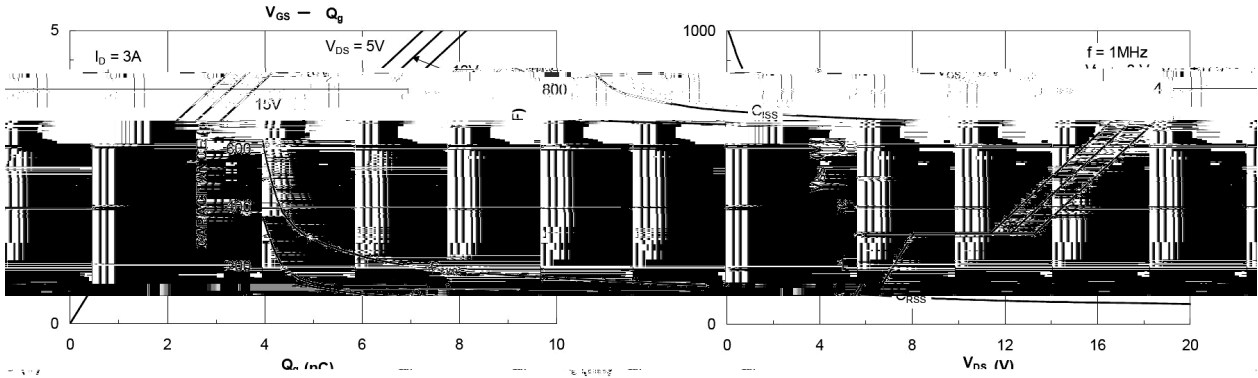
Scale 1 : 1 on letter size paper

2. Pulse Test: Pulse Width 300 s, Duty Cycle 2.0%

/ Electrical Characteristic Curve



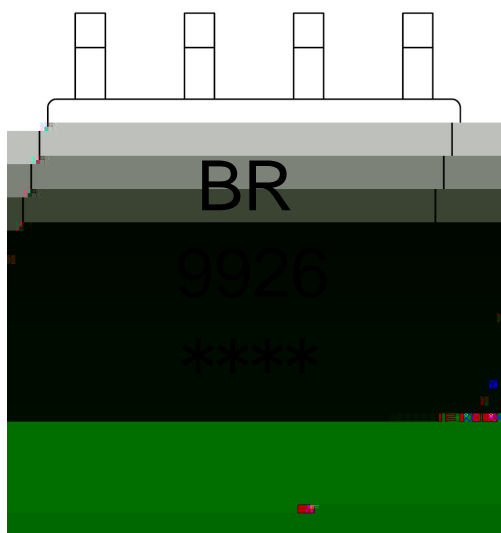
/ Electrical Characteristic Curve



/ Package Dimensions



/ Marking Instructions



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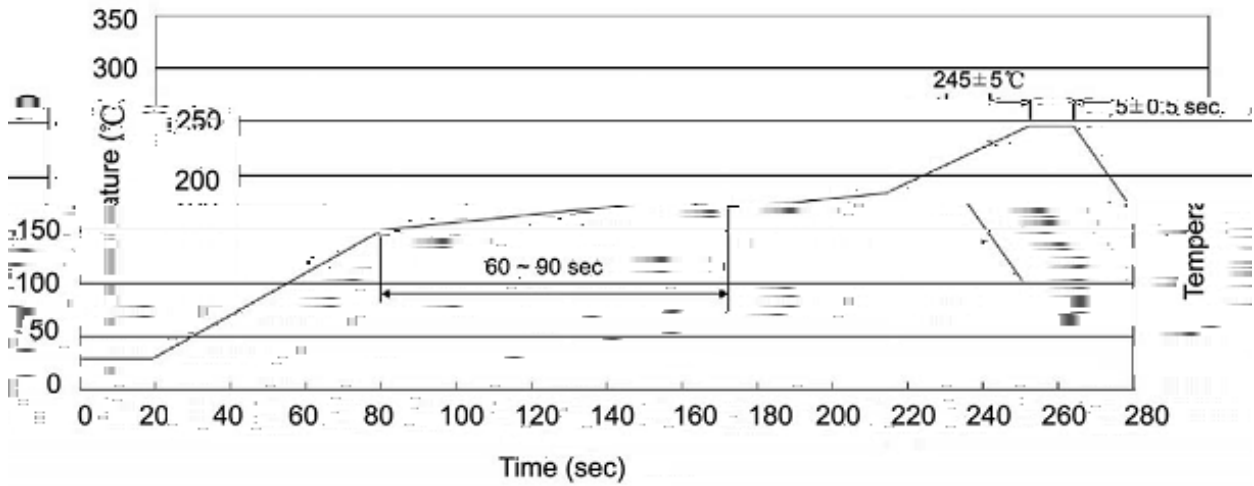
Note:

BR: Company Code.

9926 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±0.5 | sec; | 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

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
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/ Notices