

BRCS250N03DSC

Rev.A Jun.-2023

SOP-8 N MOS

Double N-CHANNEL MOSFET in a SOP-8 Plastic Package.

$V_{DS}(V)=30V$ $I_D=7.5A$

$R_{DS(ON)}@10V<25m$ (Typ. 20mR)

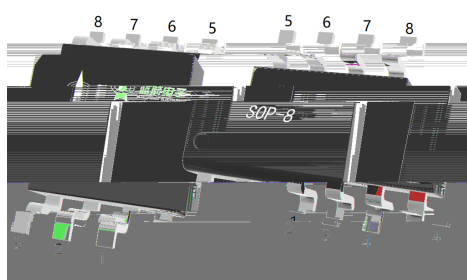
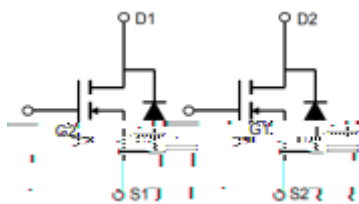
$R_{DS(ON)}@4.5V<40m$ (Typ. 28mR)

HF Product.

MB/NB/UMPC/VGA

DC-DC

High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA,
Networking DC-DC Power System,Load Switch.



PIN1 S1 PIN 2

/ 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	$I_D (T_C=25^\circ\text{C})$	7.5	A
Pulsed Drain Current	I_{DM}	43	A
Power Dissipation	$P_D (T_C=25^\circ\text{C})$	2.5	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	
Maximum Junction-to-Ambient	$R_{JA}(\text{Steady-State})$	90	/W
Maximum Junction-to-Case	$R_{JC}(\text{Steady-State})$	50	/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\text{ A}$	30	34		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$ $V_{GS}=0V$			1.0	A
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\text{ A}$	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=6.9A$		20	25	m
		$V_{GS}=4.5V$ $I_D=5.0A$		28	40	m
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1.0A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		690		pF
Output Capacitance	C_{oss}			200		pF
Reverse Transfer Capacitance	C_{rss}			130		pF
Gate resistance	R_g	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		2.7		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=6A$		5.2		nC
Total Gate Charge	$Q_{g(4.5V)}$			2.5		nC
Gate-Source Charge	Q_{gs}			0.8		nC
Gate-Drain Charge	Q_{gd}			1.3		nC

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15\text{ V}$ $V_{GS}=10\text{V}$ $R_L=2.5$ $R_{GEN}=3$		4.5		ns
Turn-On Rise Time	t_r			2.5		ns
Turn-Off Delay Time	$t_{d(off)}$			14.5		ns
Turn-Off Fall Time	t_f			3.5		ns

/ Electrical Characteristic Curve

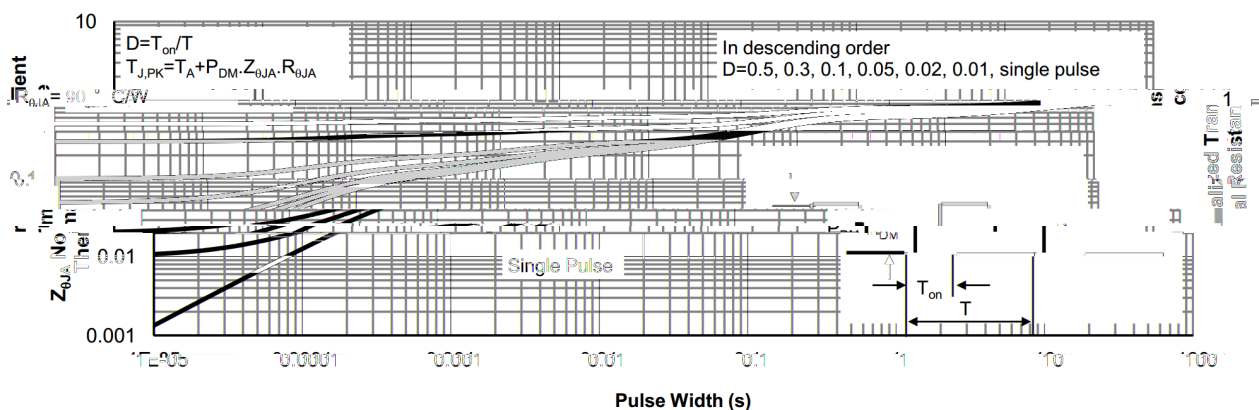
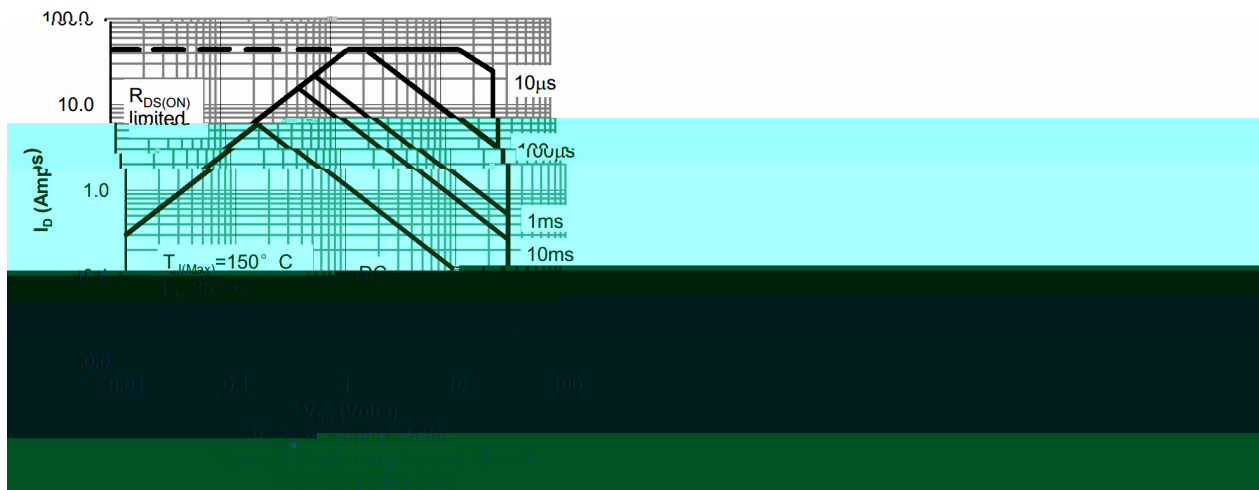
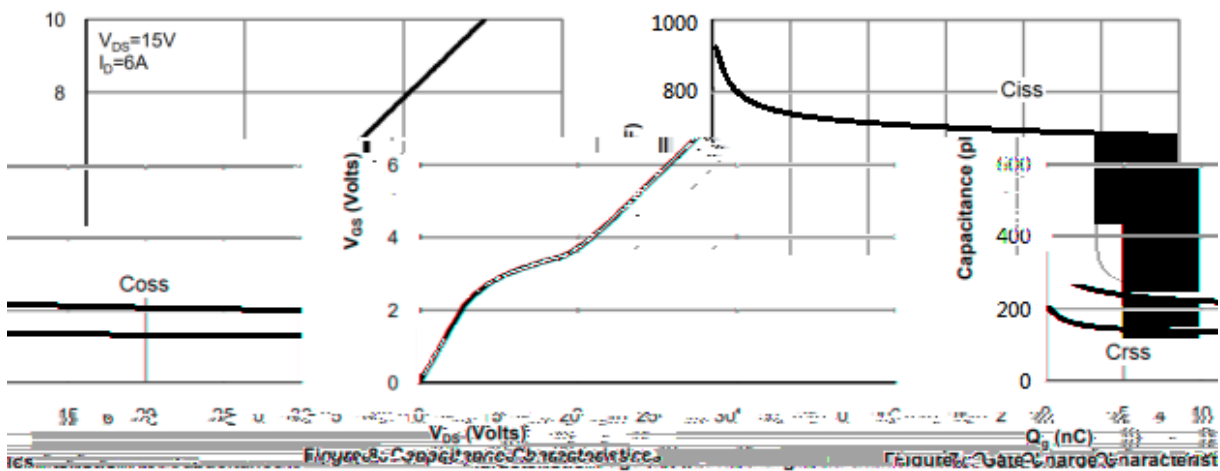
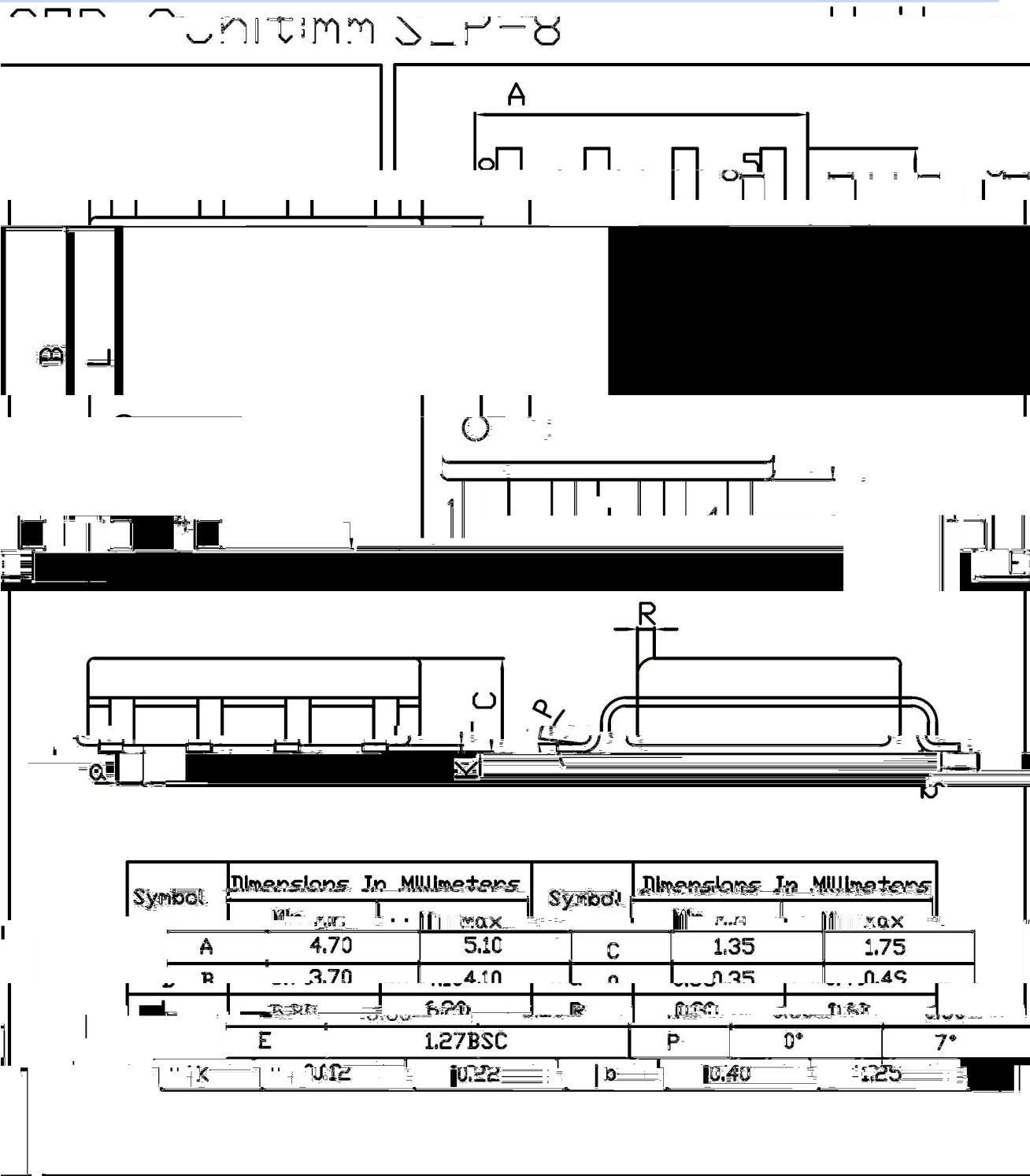
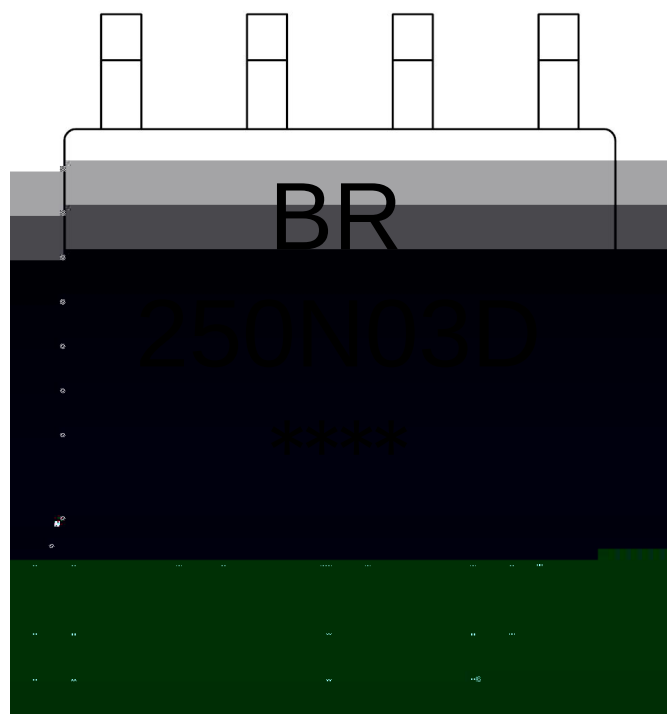


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



/ Marking Instructions



BR

250N03D

Note:

BR: Company Code

250N03D: 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		