

Rev.A Jun.-2023

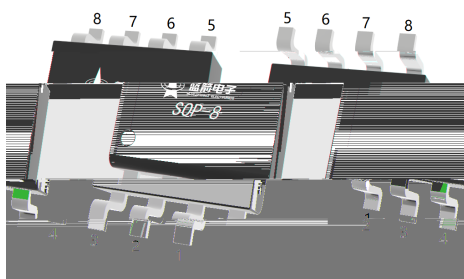
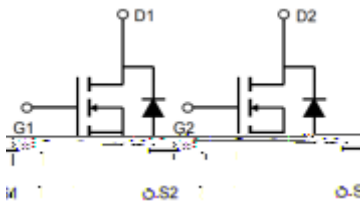
SOP-8            N        MOS

$V_{DS}(V)=30V$       $I_D=7.5A$   
 $R_{DS(ON)}@10V<25m\Omega$ (Typ. 20mR)  
 $R_{DS(ON)}@4.5V<40m\Omega$ (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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	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

/

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	30	34		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V$ $V_{GS}=0V$			1.0	$\mu A$
Gate-Body leakage current	$I_{GSS}$	$V_{GS}=\pm 20V$ $V_{DS}=0V$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	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 $\Omega$
		$V_{GS}=4.5V$ $I_D=5.0A$		28	40	m $\Omega$
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	$R_g$	$V_{DS}=0V$ $f=1.0MHz$ $V_{GS}=0V$		2.7		
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

/

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15\text{ V}$ $V_{GS}=10\text{V}$ $R_L=2.5\Omega$ $R_{GEN}=3\Omega$		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



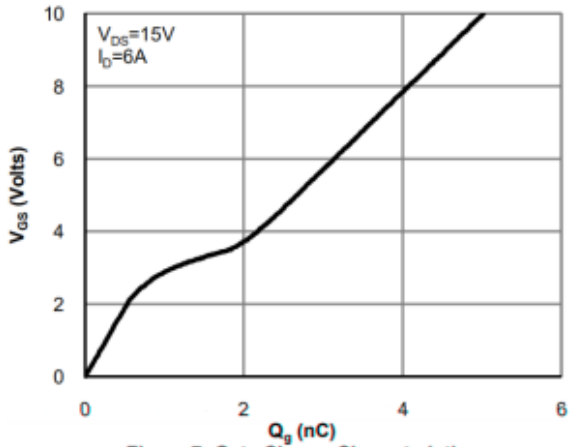


Figure 7: Gate-Charge Characteristics

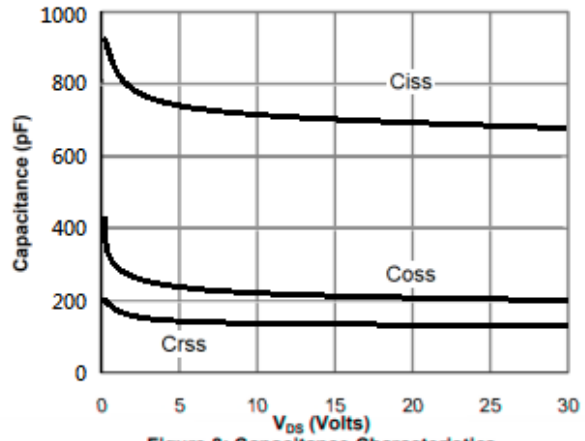


Figure 8: Capacitance Characteristics

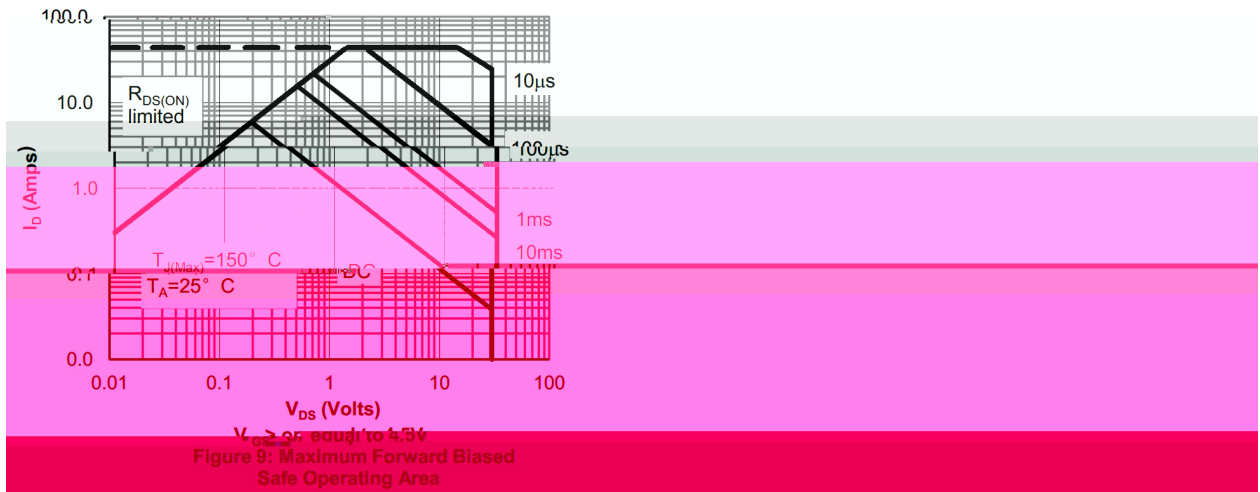


Figure 9: Maximum Forward Biased Safe Operating Area

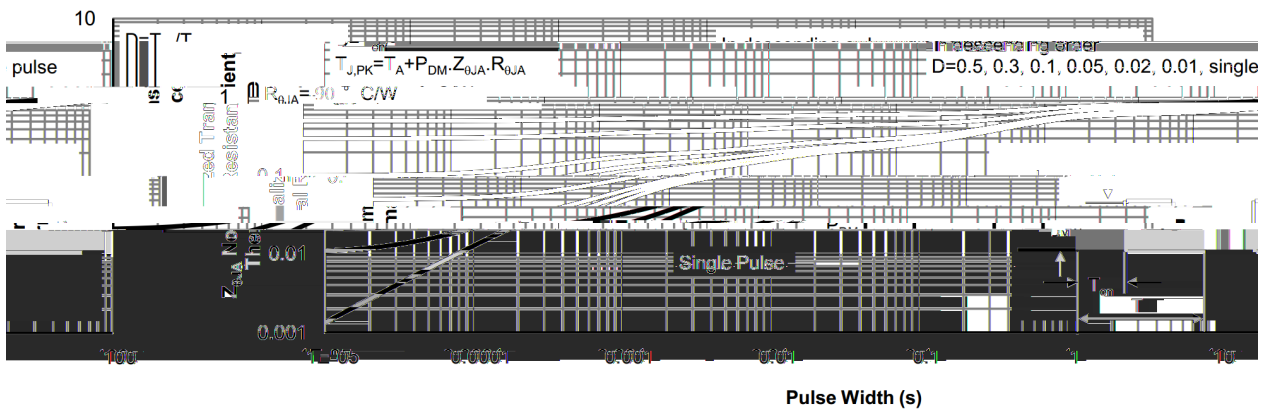
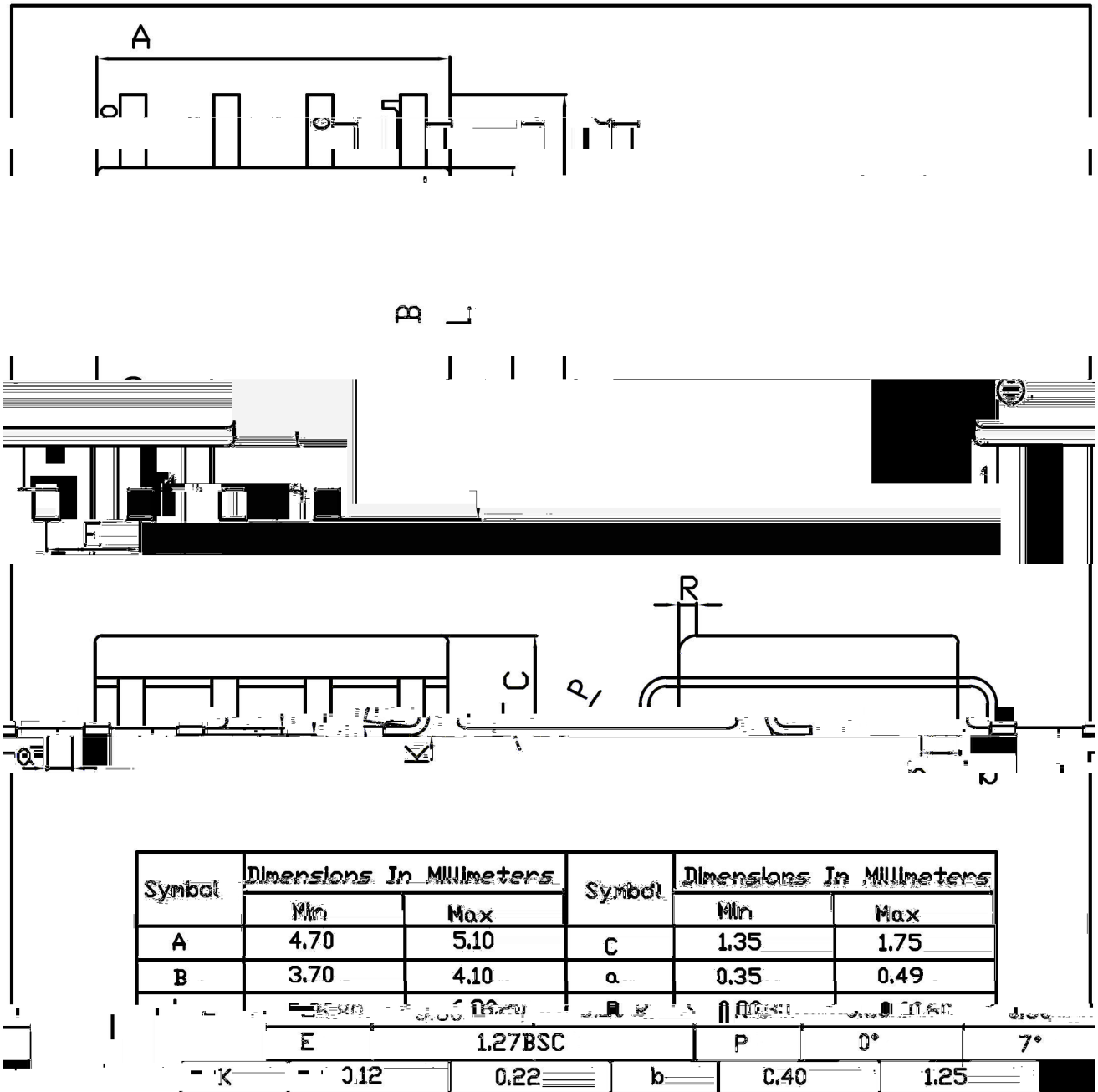
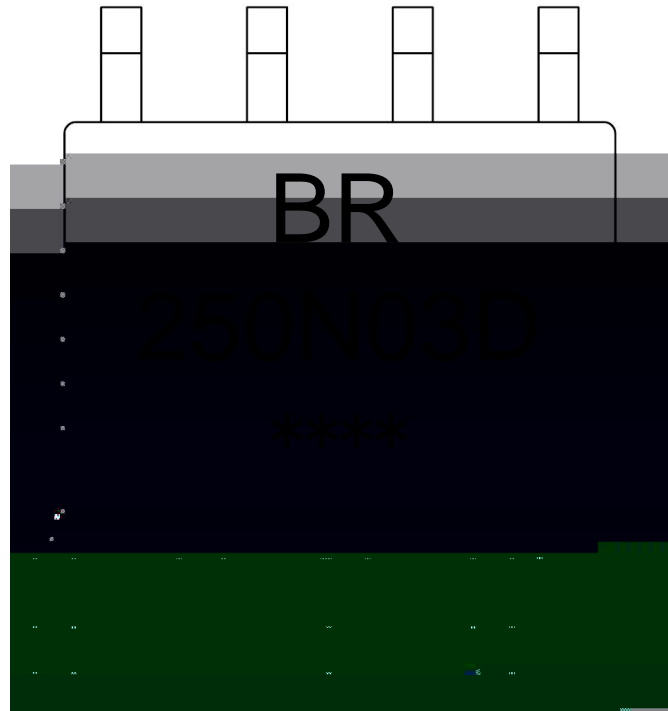


Figure 10: Normalized Maximum Transient Thermal Impedance

# SOP-8

Unit:mm





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.            |

260 5                      10 1 sec.                      Temp.:260±5                      Time:10±1 sec

/ REEL

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
	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		