/ Descriptions

SOP-8 N MOS

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

/ Features

V_{DS}(V)=30V I_D=12.3A

$R_{DS(ON)}$@10V<12mΩ(Typ. 8.7mΩ)

$R_{DS(ON)}$@4.5V<20mΩ(Typ. 11.5mΩ)

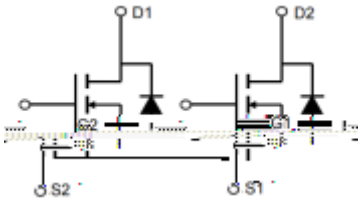
HF Product.

/ Applications

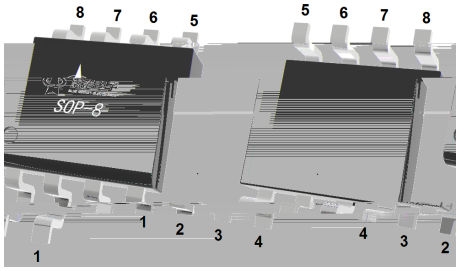
MB/NB/UMPC/VGA , DC-DC ,

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

/ Equivalent Circuit



/ Pinning



PIN1 S1 PIN 2 G1 PIN 3 S2 PIN 4 G2

PIN 5 D2 PIN 6 D2 PIN 7 D1 PIN 8 D1

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	12.3	A
Pulsed Drain Current	I_{DM}	46.5	A
Power Dissipation	P_D	3	W
Junction and Storage Temperature Range	T_J,T_{STG}	-55 to +150	
Maximum Junction-to-Ambient	R_{JA}(Steady-State)	41.7	/W

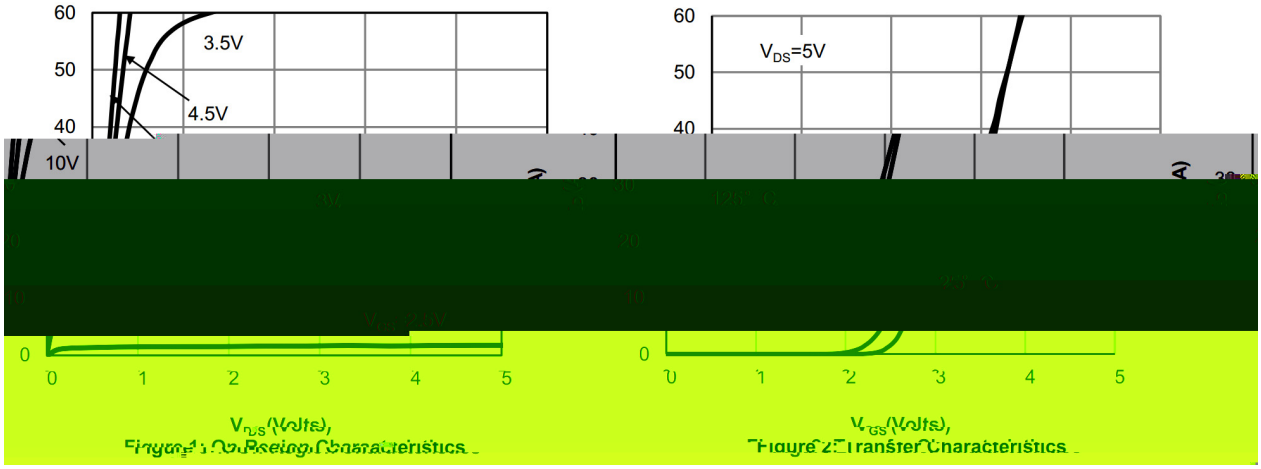
/ Electrical Characteristics(Ta=25)

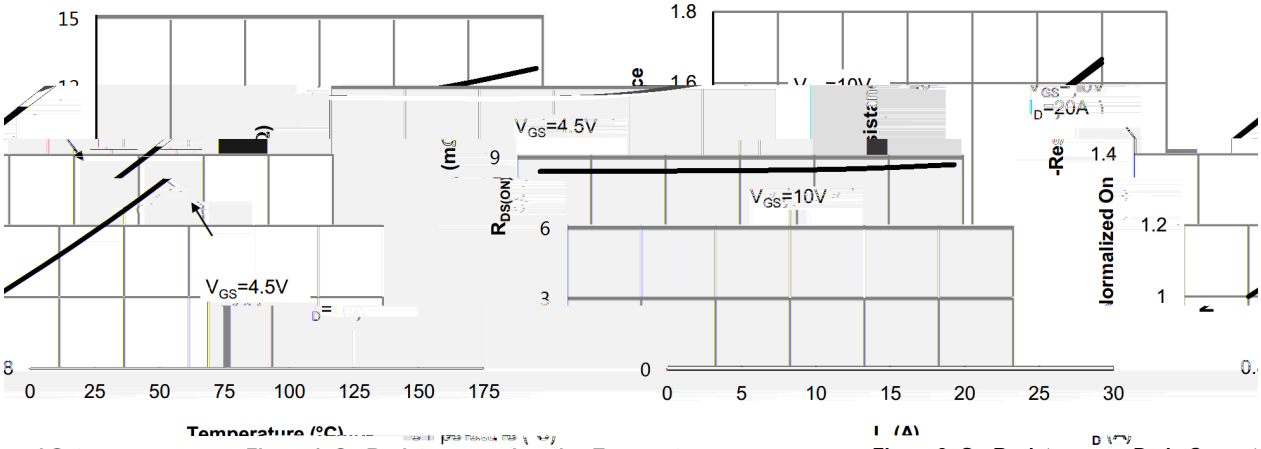
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V	I_D=250μA	30	36.5		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V	V_{GS}=0V			1	μA
Gate-Body leakage current	I_{GSS}	V_{GS}=±20V	V_{DS}=0V			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=20A		8.7	12	mΩ
		V_{GS}=4.5V	I_D=10A		11.5	20	mΩ
Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_S=1.0A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V f=1.0MHz	V_{GS}=0V		1200		pF
Output Capacitance	C_{oss}				125		pF
Reverse Transfer Capacitance	C_{rss}				100		pF
Gate resistance	R_g	V_{DS}=0V f=1.0MHz	V_{GS}=0V		3.7		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V I_D=20A	V_{DS}=15V		40		nC
Total Gate Charge	$Q_{g(4.5V)}$				22		nC
Gate-Source Charge	Q_{gs}				11		nC
Gate-Drain Charge	Q_{gd}				5		nC

/ Electrical Characteristics(Ta=25)

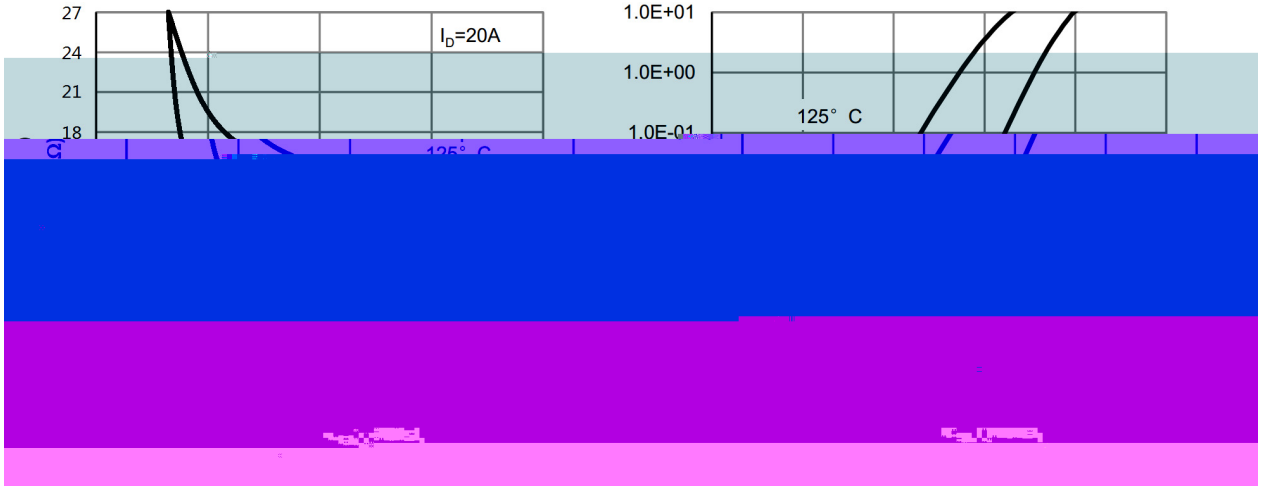
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=15 V V_{GS}=10V R_L=0.75Ω R_{GEN}=3Ω		11		ns
Turn-On Rise Time	t_r			14		ns
Turn-Off Delay Time	$t_{d(off)}$			38		ns
Turn-Off Fall Time	t_f			10		ns

/ Electrical Characteristic Curve





Voltage



/ Electrical Characteristic Curve

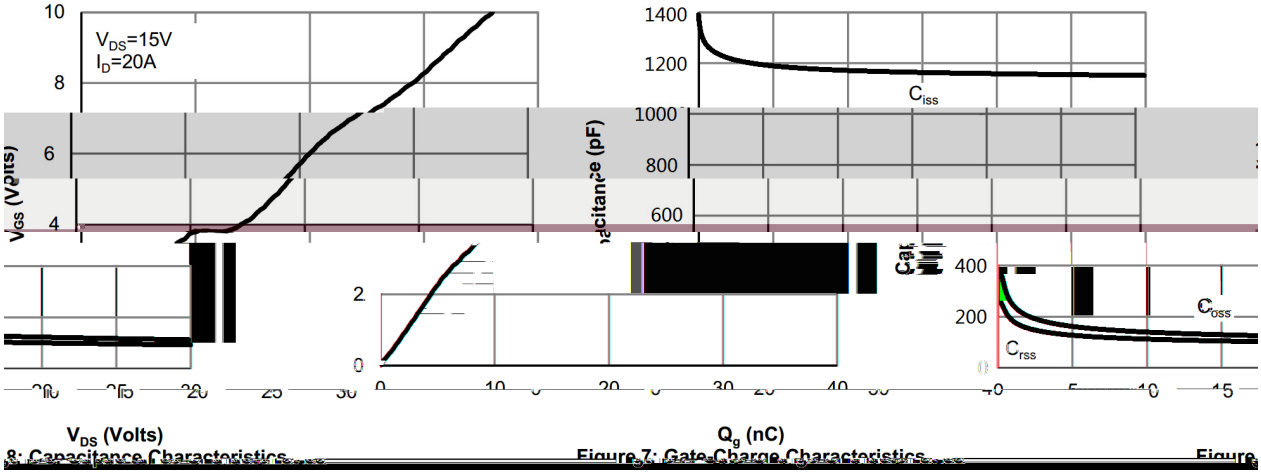


Figure 7: Gate-Charge Characteristics

Figure 8: Capacitance Characteristics

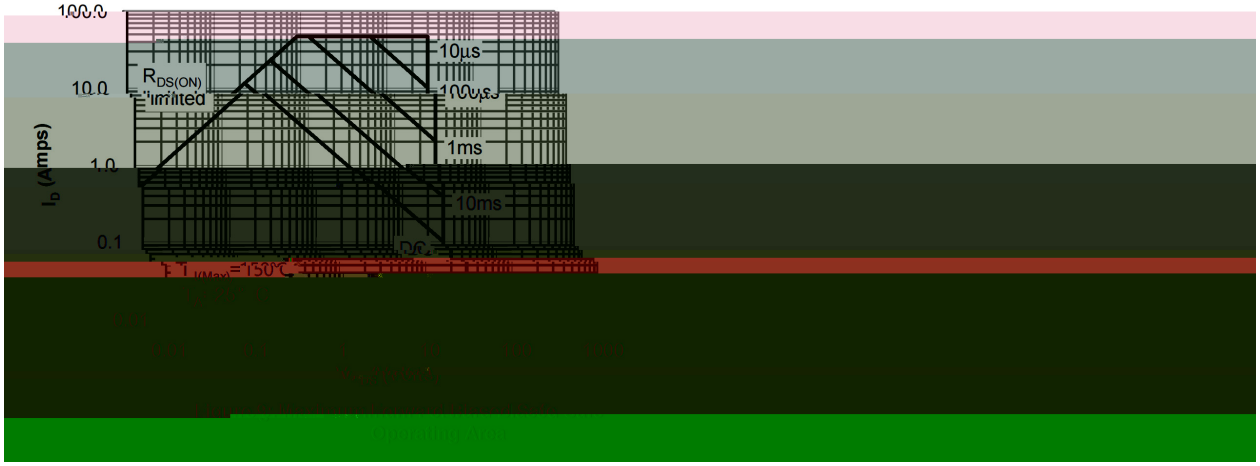


Figure 9: Maximum Forward Biased Safe Operating Area

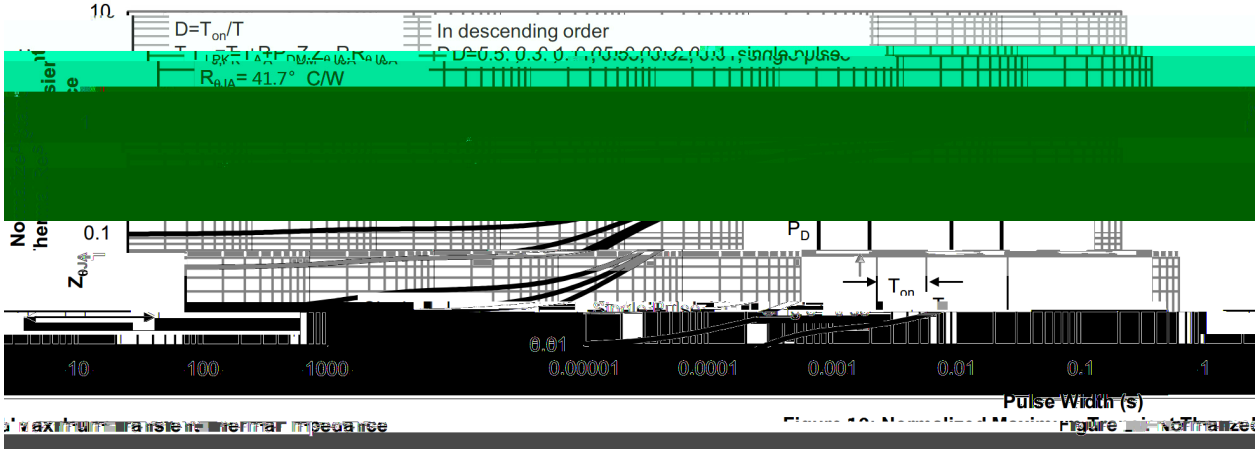
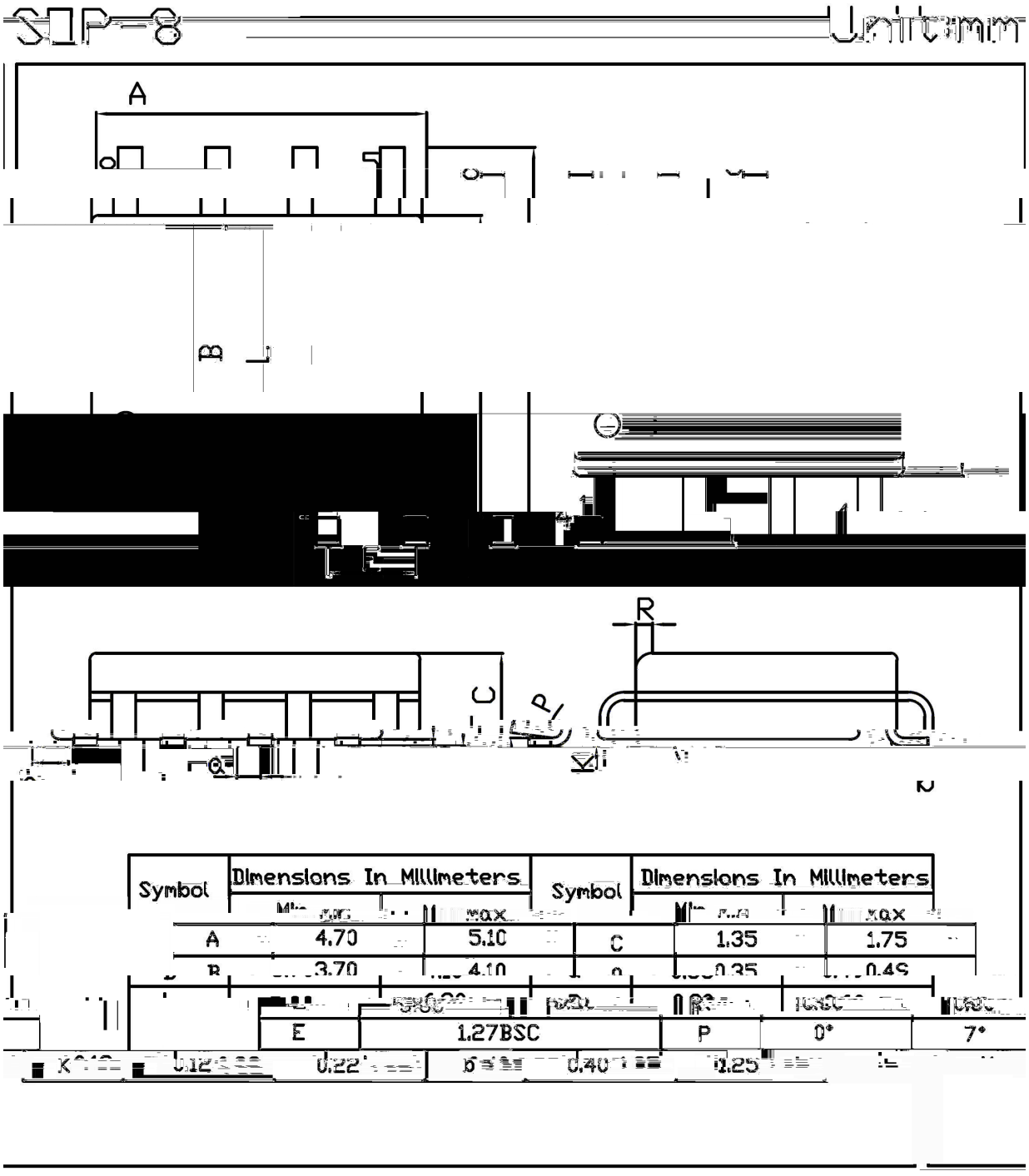


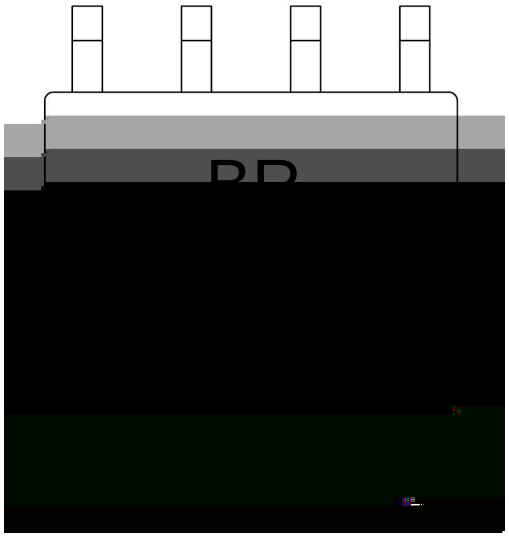
Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	θ	0°	8°
E	1.27BSC		P	0°	7°
K	0.22		b	0.40	1.25

/ Marking Instructions



BR

120N03D

****

Note:

BR:	Company Code
120N03D:	Product Type Code
****:	Lot No. Code, code change with Lot No

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

Note:

1 150 180 60 90sec;

2 245±5 5±0.5sec;

3 2 10 /sec.

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

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