

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	300	A
	$I_D(T_c=100^\circ\text{C})$	300	A
Drain Current – Pulsed	$I_{DM}(T_c=25^\circ\text{C})$	1200	A
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	375	W
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 175	
Diode Forward Current	$I_S(T_c=25^\circ\text{C})$	300	A
Single Pulsed Avalanche Energy($V_{DD}=40\text{V}, L=1.0\text{mH}$)	E_{AS}	1512	mJ
Thermal resistance, junction – ambient	$R_{\theta JA}$	60	/ W
Thermal resistance, junction – case	$R_{\theta JC}$	0.4	

Note:

1. Surface Mounted on 1 in² pad area, $t \leq 10$ sec
2. Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$
3. limited by bonding wire

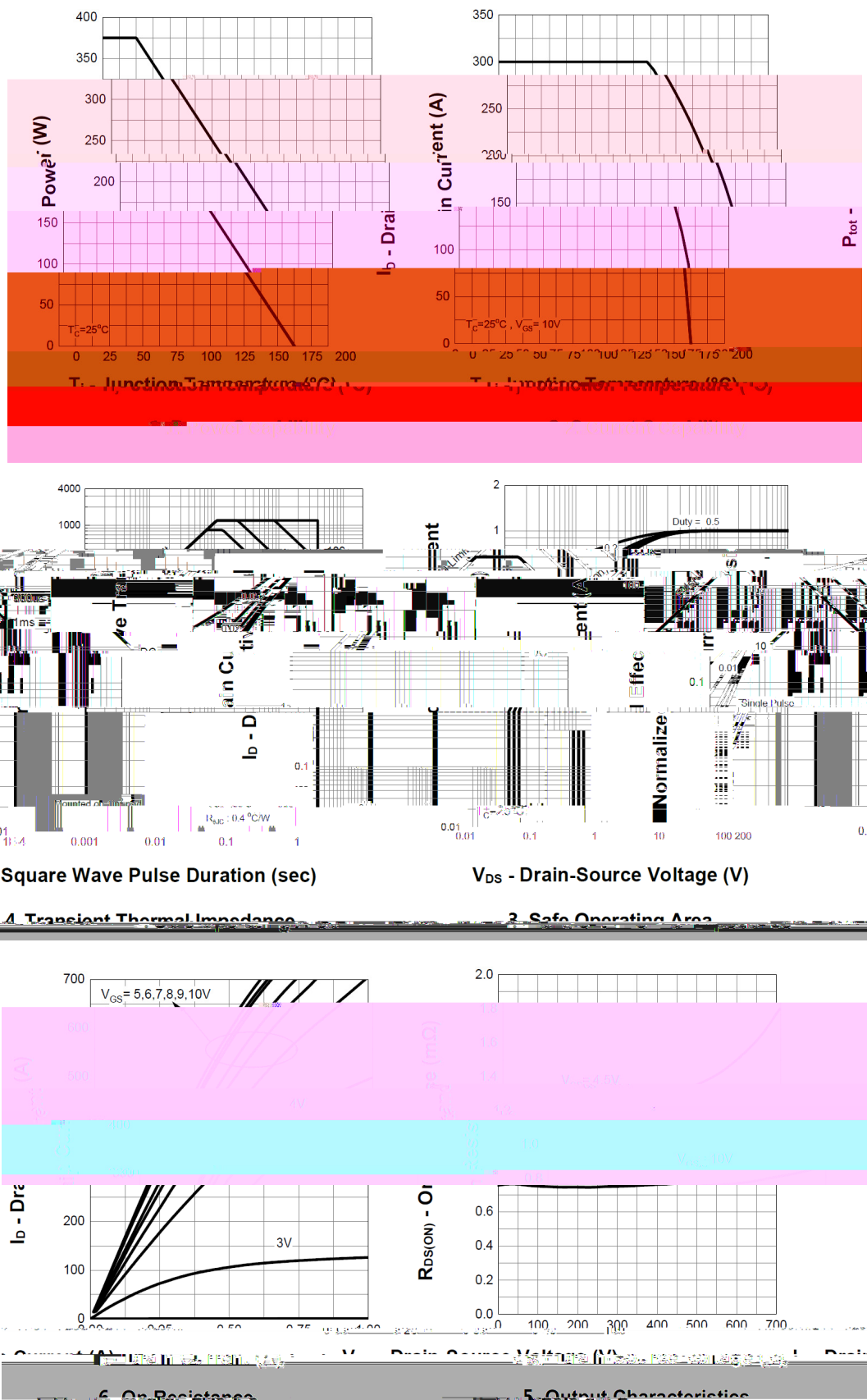
/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0\text{V}$ $I_D=250\mu\text{A}$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	1.0		2.0	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=32\text{V}$ $V_{GS}=0\text{V}$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			± 0.1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=30\text{A}$		0.75	0.85	m Ω
		$V_{GS}=4.5\text{V}$ $I_D=20\text{A}$		1.15	1.45	m Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}$ $I_S=30\text{A}$			1.3	V
Reverse Recovery Time	t_{rr}	$I_{DS} = 30\text{A}, V_{GS} = 0\text{V}$ $di_{SD}/dt = 100\text{A}/\mu\text{s}$		33		nS
Reverse Recovery Charge	Q_{rr}			21		nC
Input Capacitance	C_{iss}	$V_{DS}=20\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		14406		pF
Output Capacitance	C_{oss}			1043		
Reverse Transfer Capacitance	C_{rss}			369		

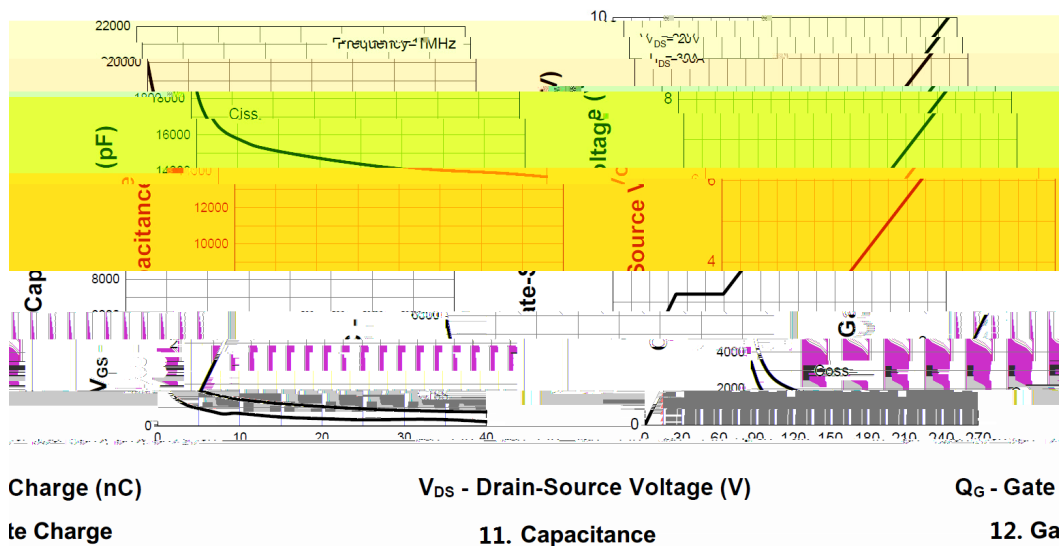
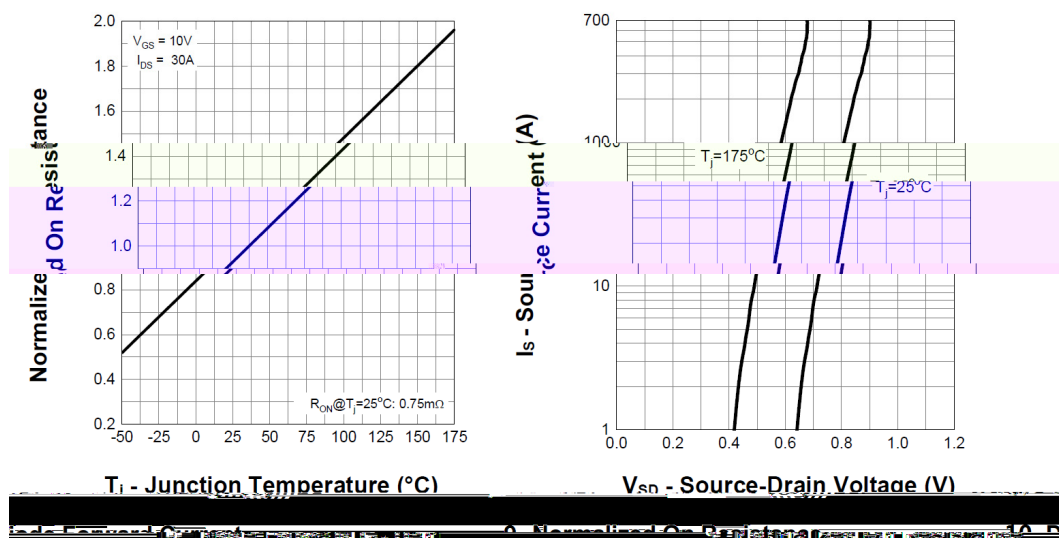
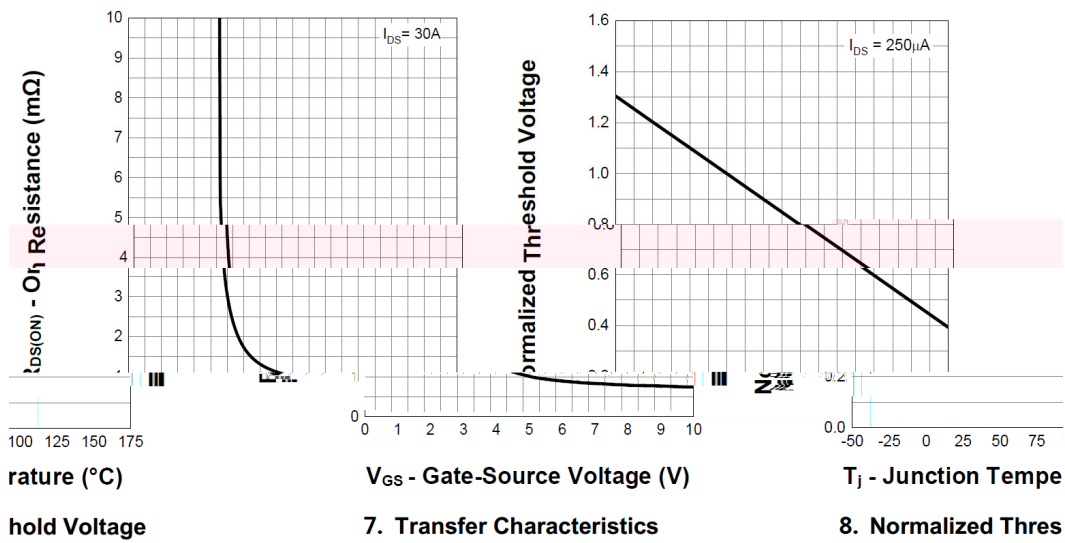
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GEN}=10V$ $V_{DS}=20V$ $R_L=0.66\Omega$ $R_G=3.9\Omega$ $I_{DS}=30A$		20		ns
Turn-On Rise Time	t_r			76		
Turn-Off Delay Time	$t_{d(off)}$			222		
Turn-Off Fall Time	t_f			105		
Total Gate Charge	Q_g	$V_{GS}=10V$ $V_{DS}=20V$ $I_D=30A$		263		nC
Gate Source Charge	Q_{gs}			51		
Gate Drain Charge	Q_{gd}			38		

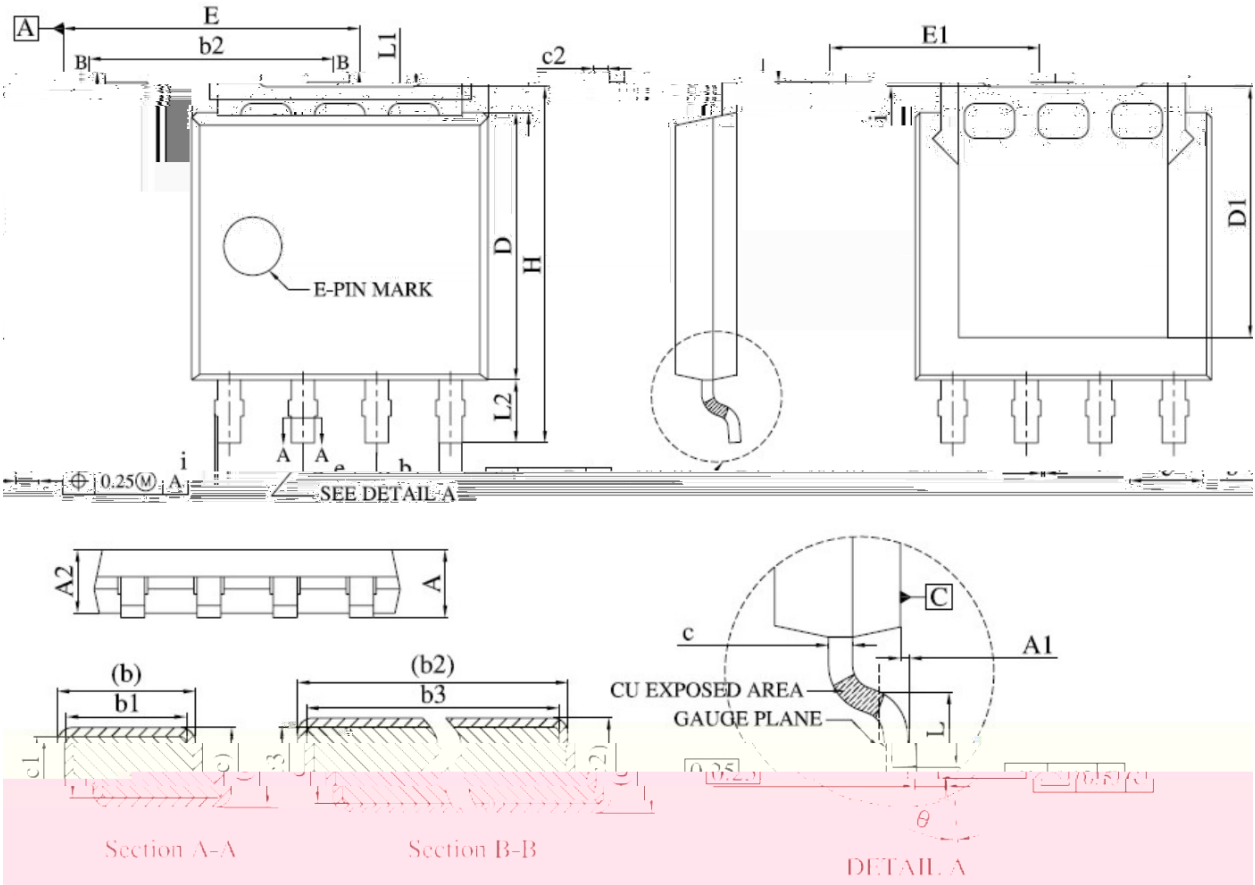
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve



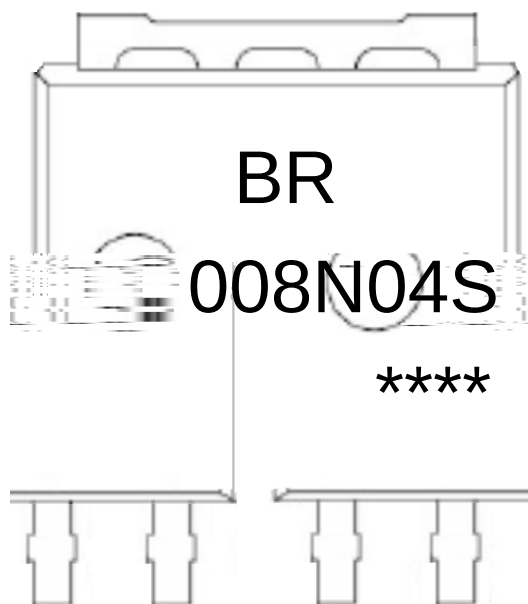
/ Package Dimensions



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	1.00	1.30
A1	0.00	0.15
A2	0.98	1.12
b	0.35	0.50
b1	0.32	0.46
b2	4.02	4.41
b3	4.00	4.37
c	0.19	0.25
c1	0.17	0.23
c2	0.24	0.30
c3	0.22	0.28
D	4.45	4.70
D1	-	4.45

Symbol	Dimensions In Millimeter	
	MIN.	MAX.
E	4.95	5.20
E1	3.50	3.70
e	1.27 BSC.	
H	5.95	6.20
i	-	0.20
L	0.40	0.80
L1	0.27	0.50
L2	0.80	1.00
θ	0°	8°

/ Marking Instructions



008N04S

Note

BR: Company Code

008N04S: Product Type Code

****: Lot No. Code, code change with Lot No.

BRCS008N04SSL