

/ Absolute Maximum Ratings(T_C Absolut3 Tm0 g.0004 Tc

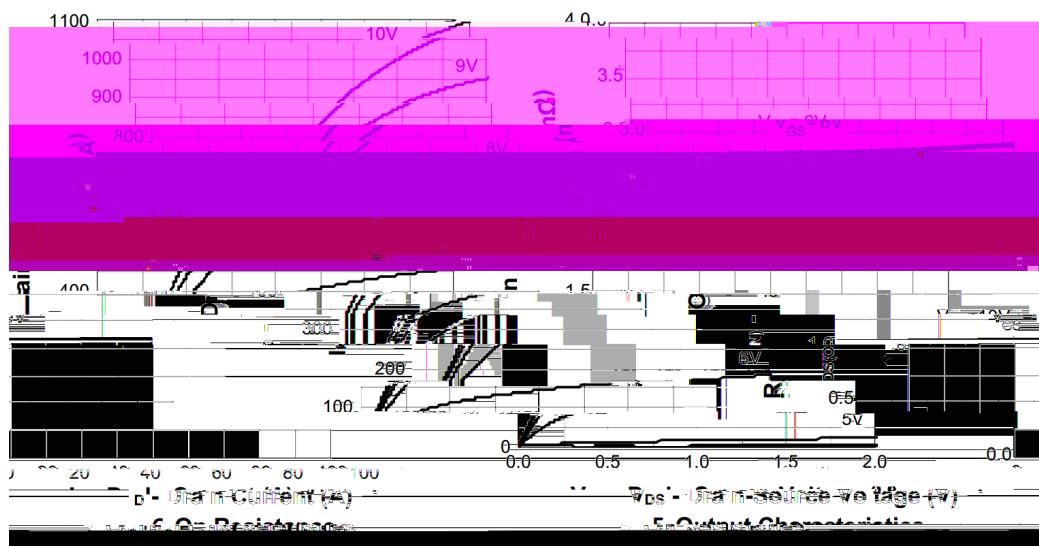
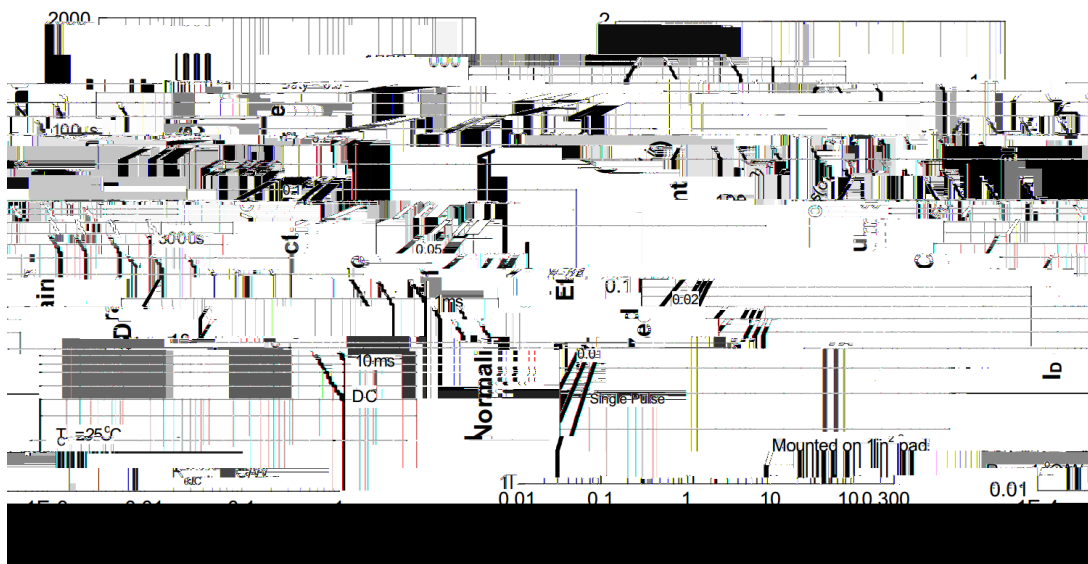
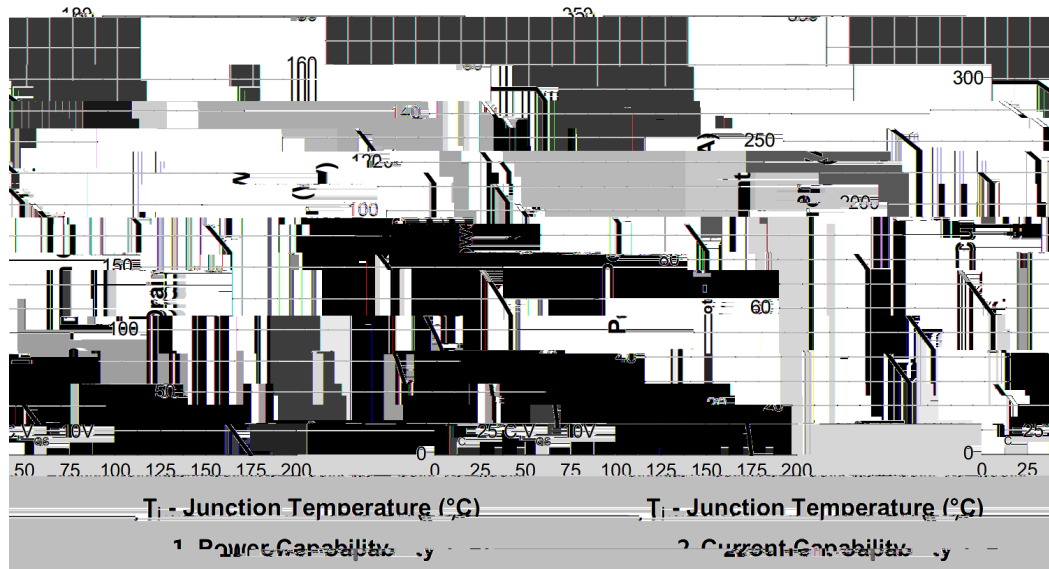
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Drain Current - Continuous		I_D	297	A
Drain Current - Continuous		$I_D(T_C=100^\circ\text{C})$	210	A
Drain Current – Pulsed		I_{DM}	1100	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		P_{tot}	150	W
Continuous-Source Current		I_S	297	A
Single Pulse Avalanche Energy($V_{DD}=50V, L=1mH$)		E_{AS}	1225	mJ
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 175	
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	44.9	/ W
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=32V, V_{GS}=0V$			1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$		1.1	1.3	$m\Omega$
	$R_{DS(ON)}$	$V_{GS}=6V, I_D=20A$		2.8	3.2	$m\Omega$
Diode Forward Voltage	V_{SD}	$I_S=30A, V_{GS}=0V$			1.3	V
Input Capacitance	C_{iss}	$V_{DS}=20V, V_{GS}=0V, f=1.0MHz$		4875		pF
Output Capacitance	C_{oss}			2047		
Reverse Transfer Capacitance	C_{rss}			175		
Total Gate Charge	Q_g	$V_{GS}=10V, I_{DS}=30A, V_{DS}=20V$		80		nC
Gate Source Charge	Q_{gs}			27		
Gate Drain Charge	Q_{gd}			19		

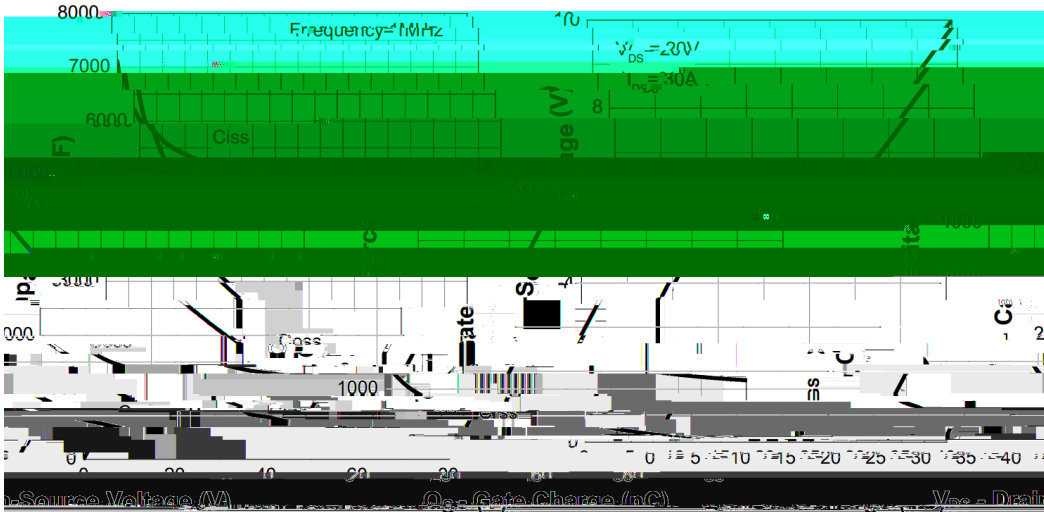
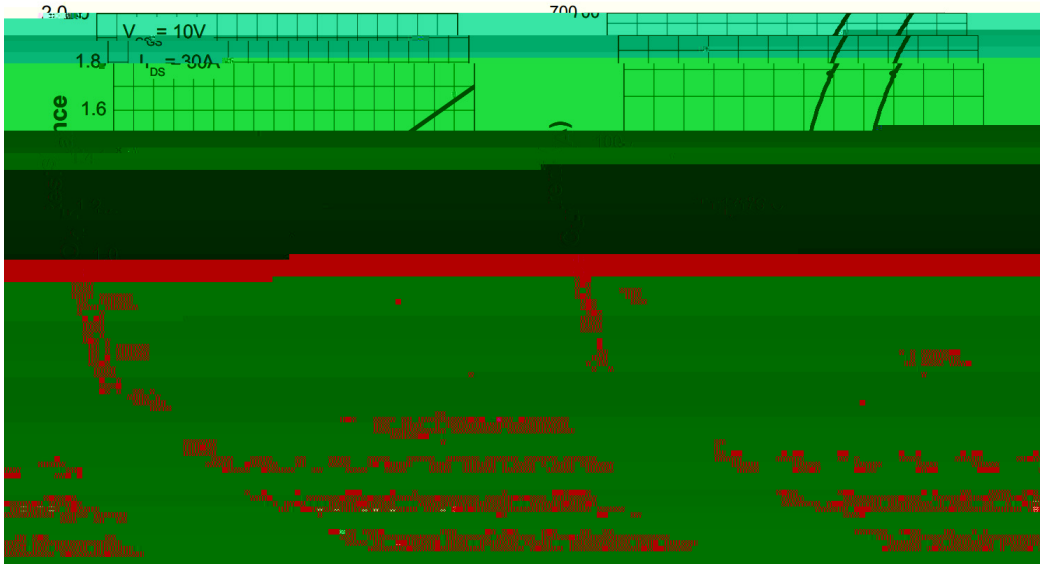
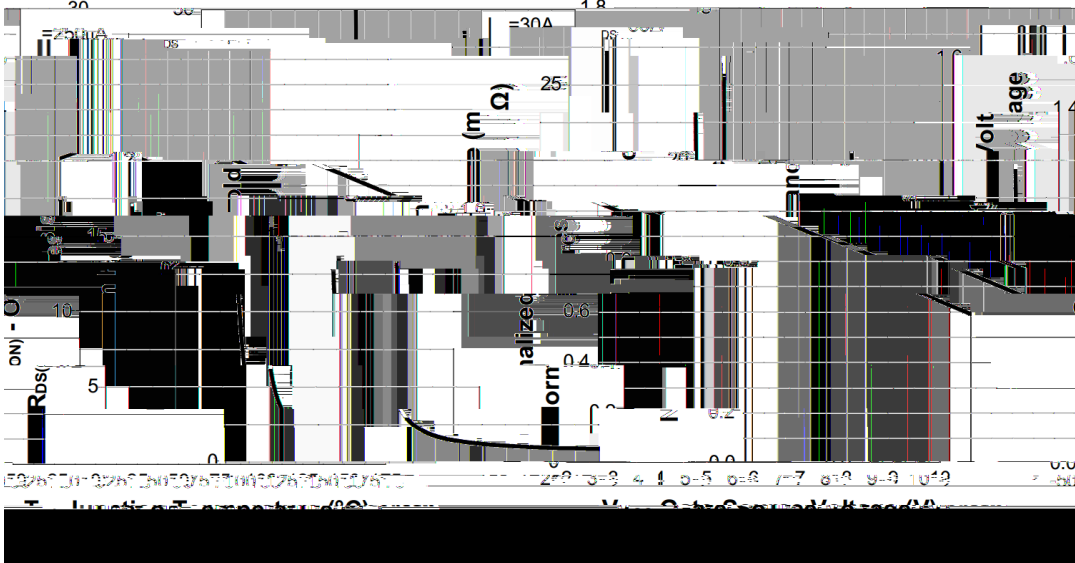

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=20V$ $R_L=0.66$ $R_G=3.9\Omega$ $I_{DS}=30A$		19		ns
Turn-On Rise Time	t_r			79		
Turn-Off Delay Time	$t_{d(off)}$			52		
Turn-Off Fall Time	t_f			44		
Reverse Recovery Time	t_{rr}	$I_{DS} = 30 A, V_{GS} = 0 V$ $dl_{SD}/dt = 100 A/\mu s$		62.3		nS
Reverse Recovery Charge	Q_{rr}			66.6		nC

/ Electrical Characteristic Curve



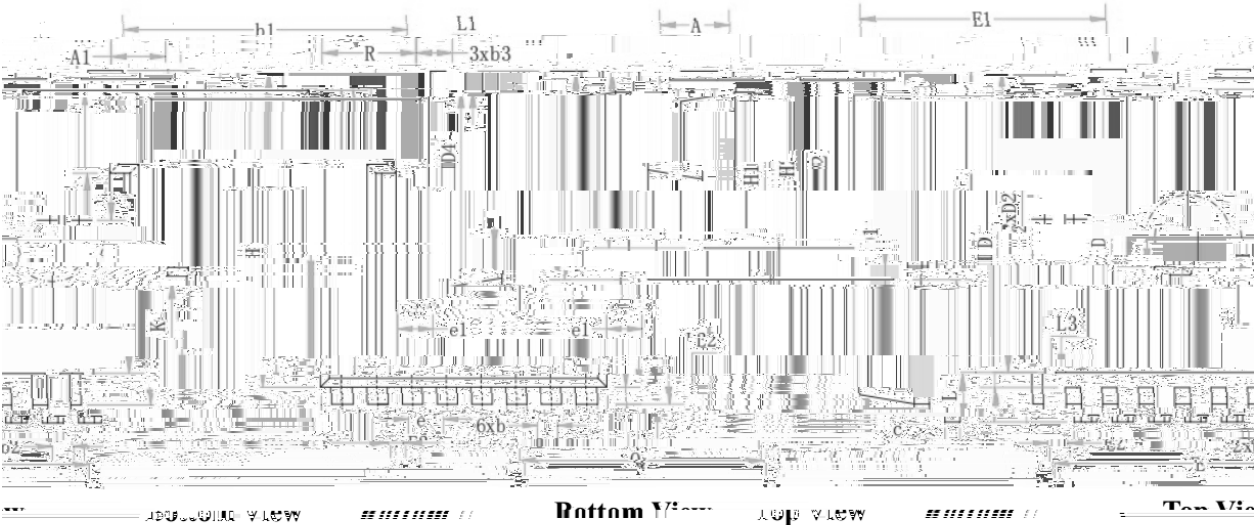
/ Electrical Characteristic Curve



11. Capacitance

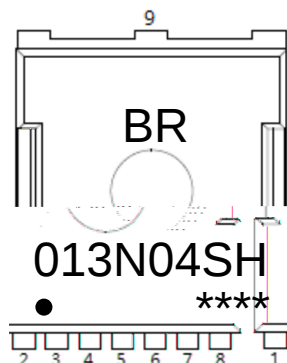
12. Gate Charge

/ Package Dimensions



Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	2.25	2.30	2.35	E	9.85	9.90	9.95
A1	1.75	1.80	1.85	E1	8.00	8.10	8.2
b	0.65	0.70	0.75	E2	0.65	0.70	0.7
b1	9.75	9.80	9.85	H1	11.60	11.70	1
h2	0.70	0.75	0.80	H1	6.95	7.00	7.05
h3	1.15	1.20	1.25	H2	3.90	3.95	4.00
h4	0.55	0.60	0.65	H3	2.10	2.15	2.20
D	10.35	10.40	10.45	L	1.55	1.65	
D1	11.00	11.10	11.20	L1	0.65	0.70	
D2	3.25	3.30	3.35	L2	0.50	0.55	
D4	4.50	4.55	4.60	L3	0.40	0.45	
e	1.20	1.25	1.30	L4	0.35	0.40	
e1	1.25	1.30	1.35	L5	0.30	0.35	

/ Marking Instructions



BR

013N04SH

Note

BR

Company Code

013N04SH

Product Type Code

****:

Lot No. Code, code change with Lot No.

