/ Absolute Maximum Ratings($T_{C\ Absolut3\ Tm0\ g.0004\ Tc}$

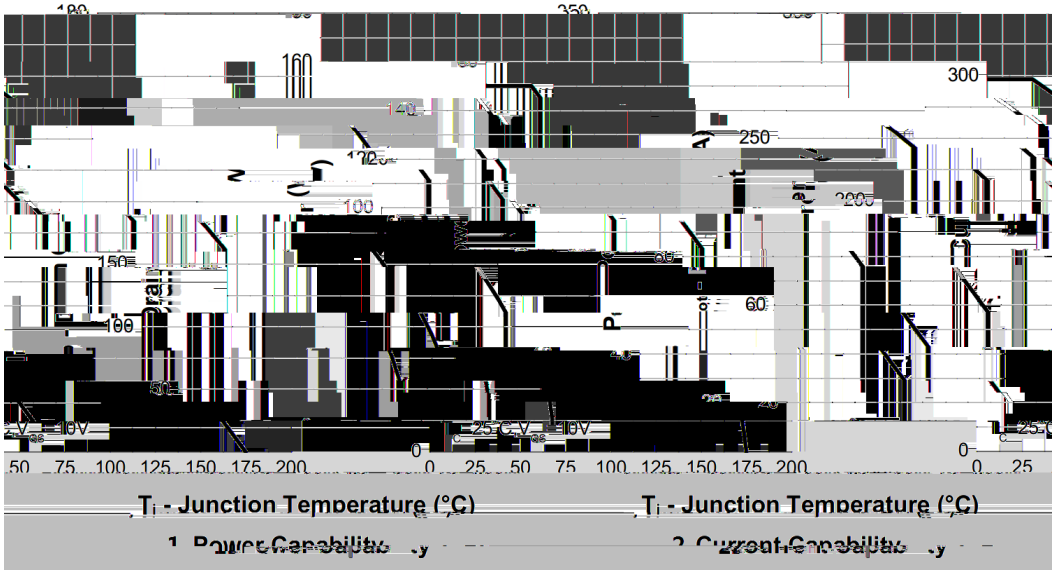
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Drain Current - Continuous		I_D	297	A
Drain Current - Continuous		$I_D(T_c$=100)	210	A
Drain Current – Pulsed		I_{DM}	1100	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		P_{tot}	150	W
Continuous-Source Current		I_S	297	A
Single 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	

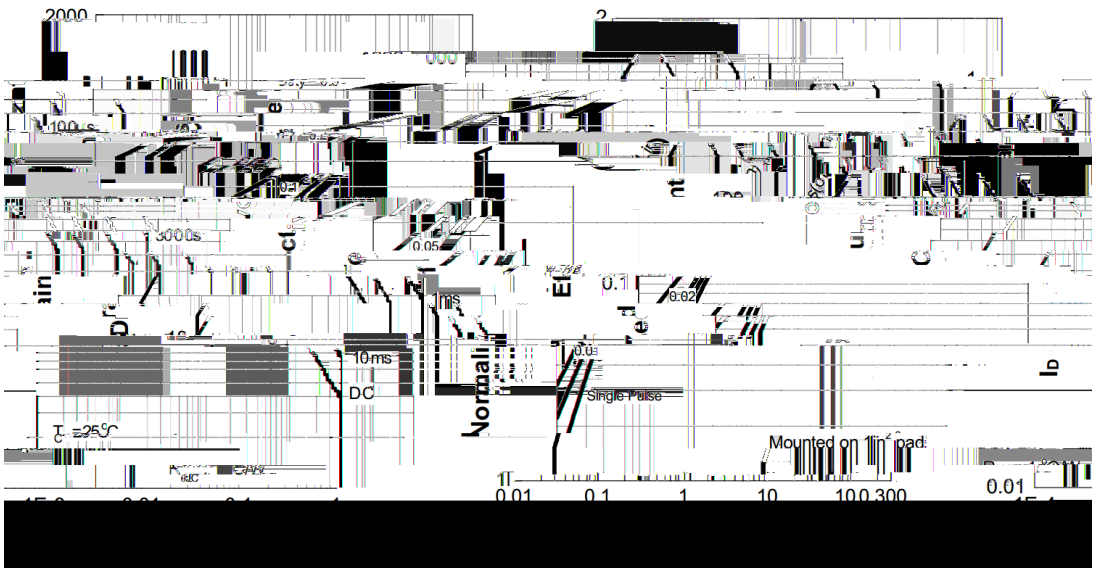
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=32V, V_{GS}=0V			1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=30A		1.1	1.3	mΩ
	$R_{DS(ON)}$	V_{GS}=6V, I_D=20A		2.8	3.2	mΩ
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, V_{DS}=20V I_{DS}=30A		80		nC
Gate Source Charge	Q_{gs}			27		
Gate Drain Charge	Q_{gd}			19		

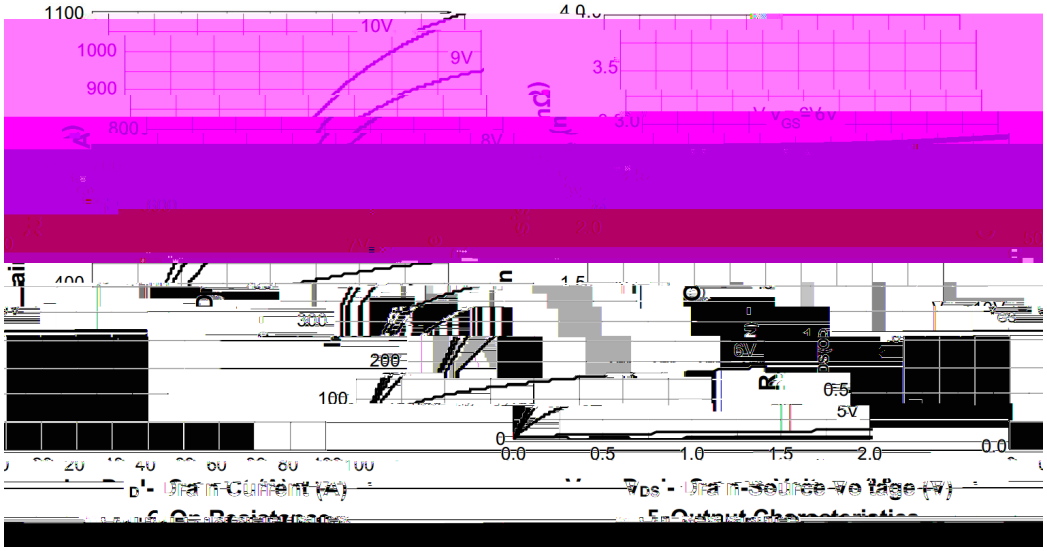
/ Electrical Characteristics(Ta=25)

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=3.9Ω 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 dI_{SD}/dt = 100 A/ μ s		62.3		nS
Reverse Recovery Charge	Q_{rr}			66.6		nC

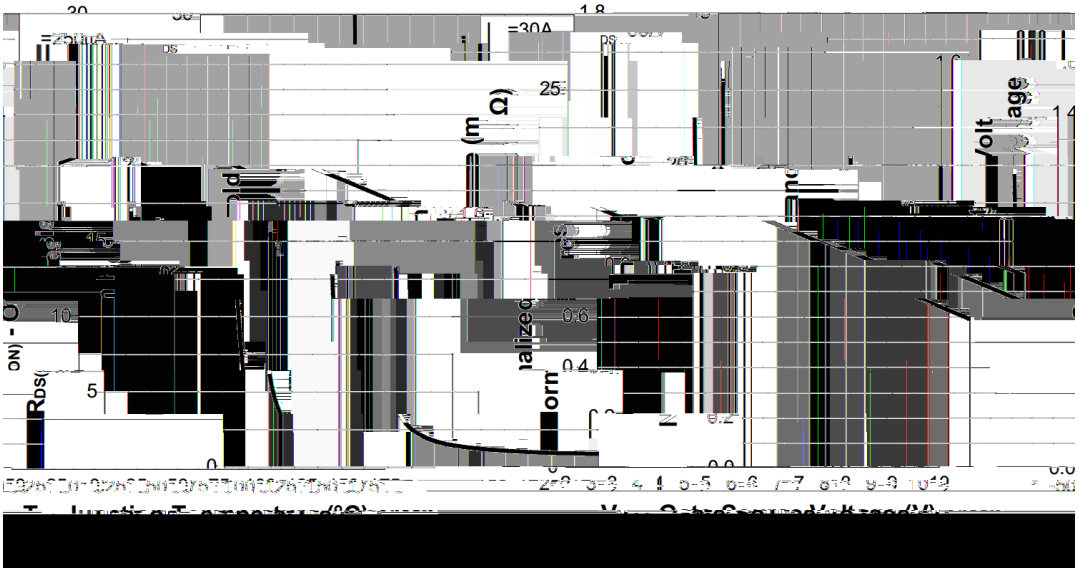
/ Electrical Characteristic Curve

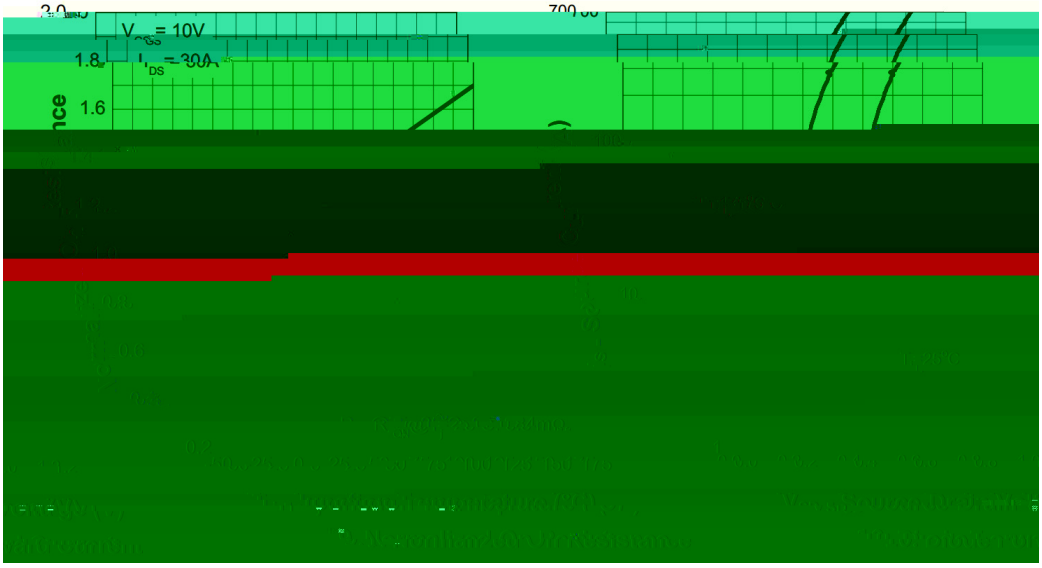


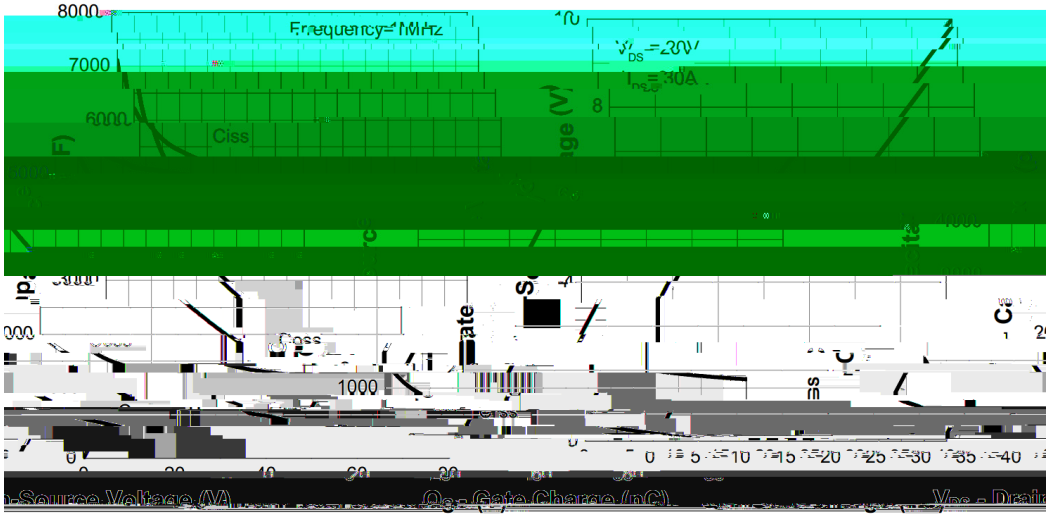




/ Electrical Characteristic Curve

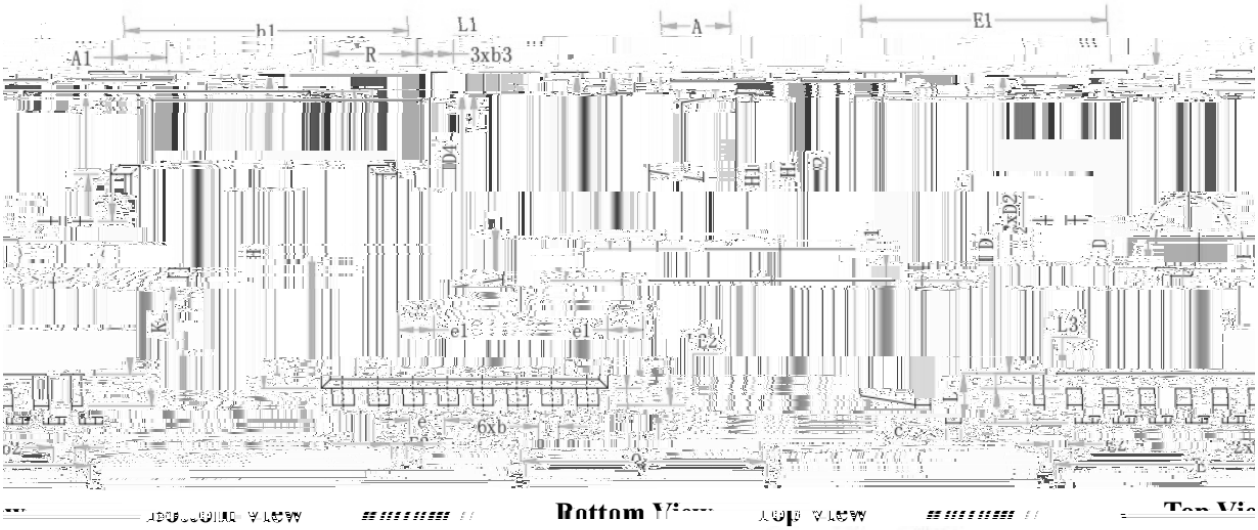






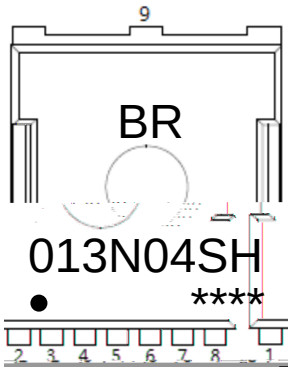
11. Capacitance **12. Gate Charge**

/ Package Dimensions



Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	2.225	2.230	2.235	E	9.85	9.90	9.95
A1	1.775	1.780	1.785	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	H	11.60	11.70	1
b2	0.70	0.75	0.80	H1	6.95 BSC		
b3	1.15	1.20	1.25	H2	5.90 BSC		
c	0.45	0.50	0.55	K	3.10 REF		
1.75	D	10.35	10.40	10.45	L	1.55	1.65
0.75	D1	11.00	11.10	11.20	L1	0.65	0.70
0.70	D2	3.25	3.30	3.35	L2	0.50	0.6
0.50	0.60	D4	4.50	4.55	4.60	L3	0.40	0.
5 REF		e	1.20 BSC				
		e1	1.225 BSC		R	3.60	

/ Marking Instructions



BR

013N04SH

****

Note

BR	Company Code
013N04SH	Product Type Code
****:	Lot No. Code, code change with Lot No.