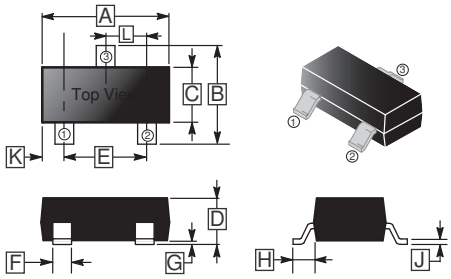
N-Channel Enhancement MOSFET

VDS= 20V, ID= 0.8A

FEATURES

- 20V/800mA
  $R_{DS(ON)} \leqq 350m\Omega @ V_{GS}=4.5V$
  $R_{DS(ON)} \leqq 660m\Omega @ V_{GS}=2.5V$
  $R_{DS(ON)} \leqq 1200m\Omega @ V_{GS}=1.8V$
- Reliable and Rugged
- Green Device Available
- ESD Protection

SOT-323



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.1 REF.	
B	1.80	2.45	H	0.525 REF.	
C	1.1	1.4	J	0.08	0.25
D	0.80	1.10	K	0.8 TYP.	
E	1.20	1.40	L	0.65 TYP.	
F	0.15	0.40			

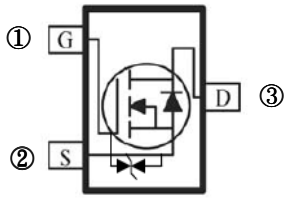
MARKING

34K

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-323	3K	7 inch

Top View



ORDER INFORMATION

Part Number	Type
YS20K8NEW	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current @V_{GS}=4.5V [1]	T_A=25℃	I_D	0.8	A
	T_A=70℃		0.64	A
Pulsed Drain Current [2]		I_{DM}	3.2	A
Total Power Dissipation [1]	T_A=25℃	P_D	340	mW
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating				
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	367	℃/W
Maximum Thermal Resistance from Junction to Ambient [2]			625	
Maximum Thermal Resistance from Junction to Case		$R_{\theta JC}$	250	

ELECTRICAL CHARACTERISTICS (T_J=25℃ Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	20	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage	$V_{GS(th)}$	0.45	-	1	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±10	μA	V_{GS}= ±10V
Drain-Source Leakage Current(T_J=25℃)	I_{DSS}	-	-	1	μA	V_{DS}=20V, V_{GS}=0
Drain-Source Leakage Current(T_J=70℃)		-	-	25	μA	V_{DS}=16V, V_{GS}=0
Static Drain-Source On-Resistance[4]	$R_{DS(ON)}$	-	-	350	mΩ	V_{GS}=4.5V, I_D=650mA
		-	-	660		V_{GS}=2.5V, I_D=500mA
		-	-	1200		V_{GS}=1.8V, I_D=450mA
Total Gate Charge	Q_g	-	1.3	-	nC	I_{DS}=0.5A V_{DS}=15V V_{GS}=4.5V
Gate-Source Charge	Q_{gs}	-	0.5	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	0.1	-		
Turn-on Delay Time	$T_{d(on)}$	-	2.6	-	nS	V_{DD}=10V I_{DS}=0.5A V_{GS}=10V R_{GEN}=1Ω
Rise Time	T_r	-	16	-		
Turn-off Delay Time	$T_{d(off)}$	-	29.8	-		
Fall Time	T_f	-	11	-		
Input Capacitance	C_{iss}	-	64	-	pF	V_{GS}=0V V_{DS}=10V f=1.0MHz
Output Capacitance	C_{oss}	-	17	-		
Reverse Transfer Capacitance	C_{rss}	-	20	-		
Source-Drain Diode						
Continuous Source Current[1]	I_S	-	-	0.8	A	
Pulsed Source Current[3]	I_{SM}	-	-	3.2	A	
Diode Forward Voltage[4]	V_{SD}	-	-	1	V	I_S=150mA, V_{GS}=0V
Reverse Recovery Time	t_{rr}	-	4.9	-	nS	IF=0.5A,dI/dt=100A/μs , T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	1.0	-	nC	

Notes:

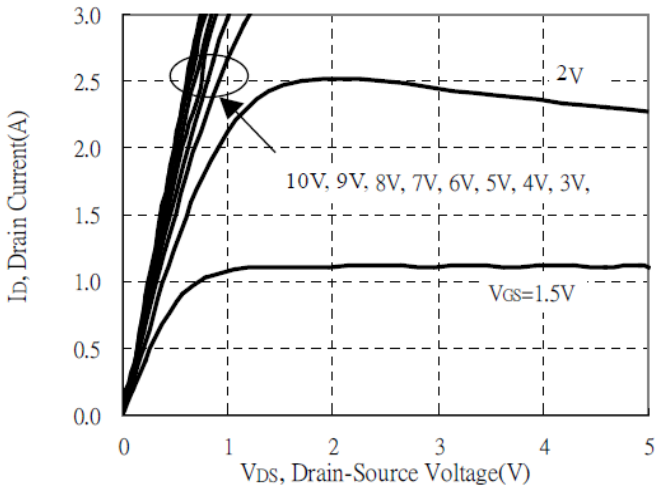
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper, t ≦ 10 sec
2. Surface mounted on FR4 board
3. Pulse width limited by maximum junction temperature., Pw ≤ 300μs, Duty cycle ≤ 1%
4. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

DEVICE CHARACTERISTICS

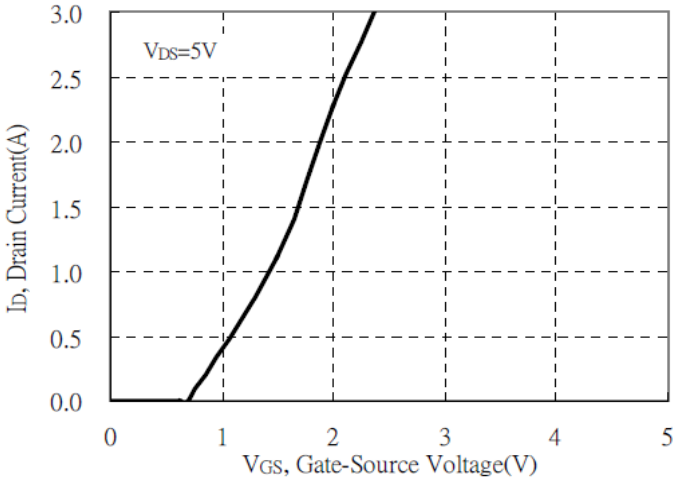
YS20K8NEW

CHARACTERISTIC CURVES

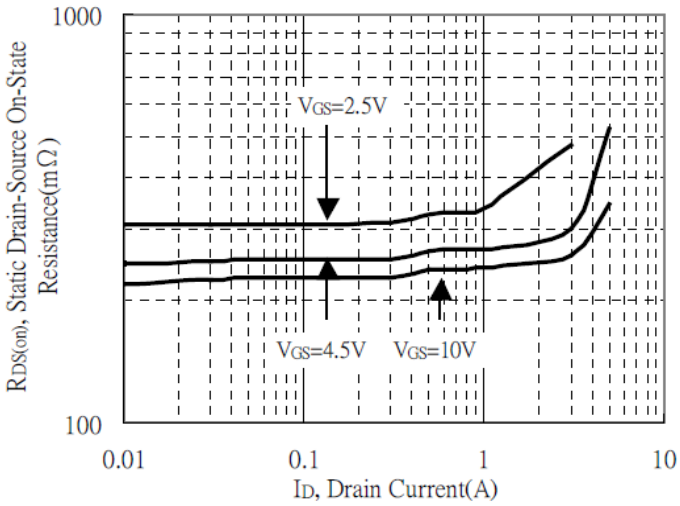
Typical Output Characteristics



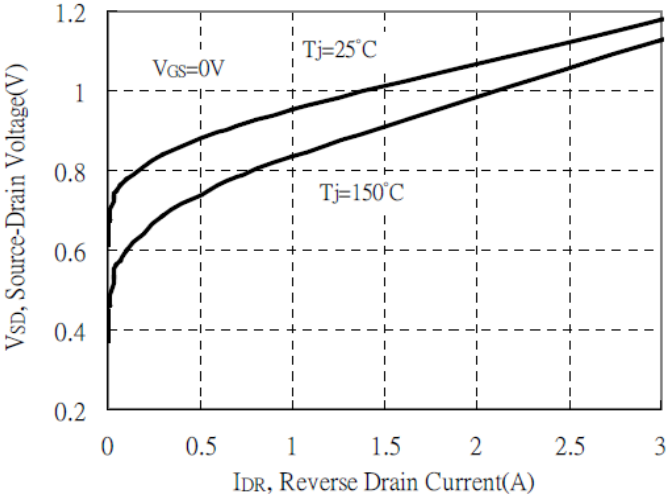
Typical Transfer Characteristics



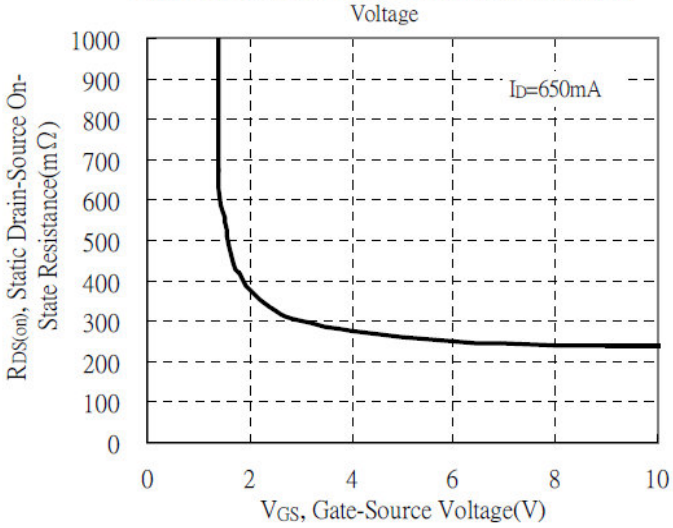
Static Drain-Source On-State resistance vs Drain Current



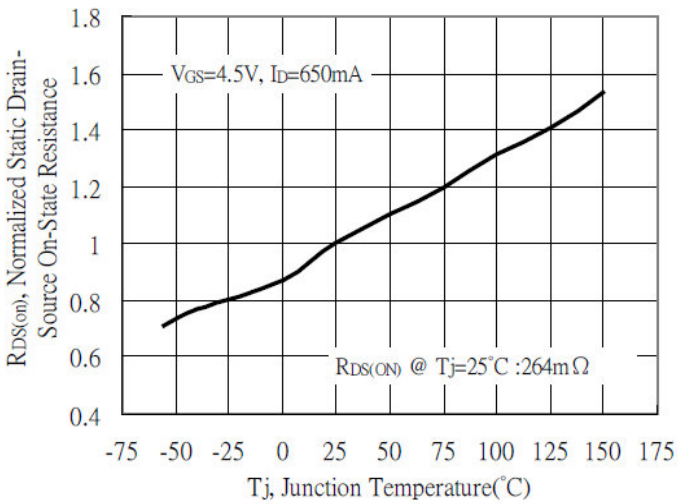
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Tempearture

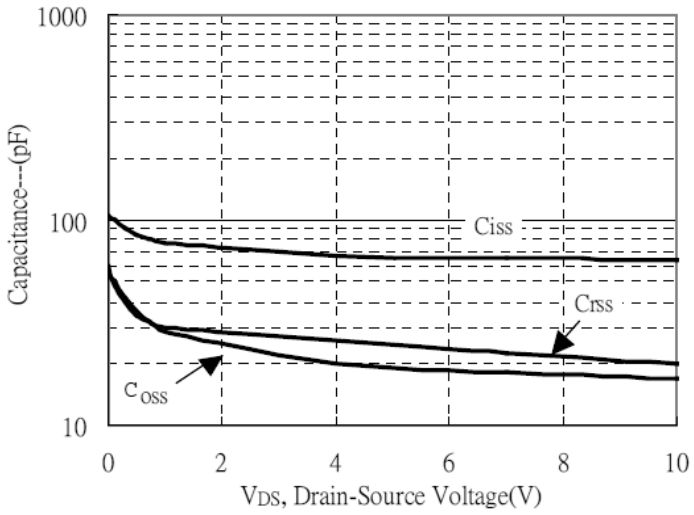


DEVICE CHARACTERISTICS

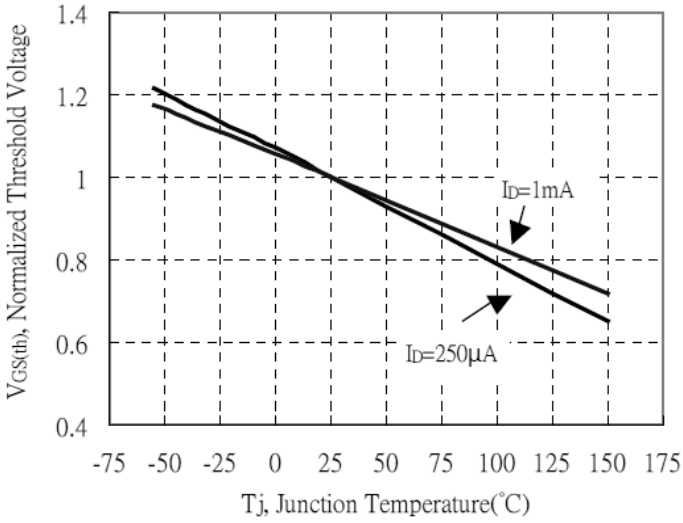
YS20K8NEW

CHARACTERISTIC CURVES

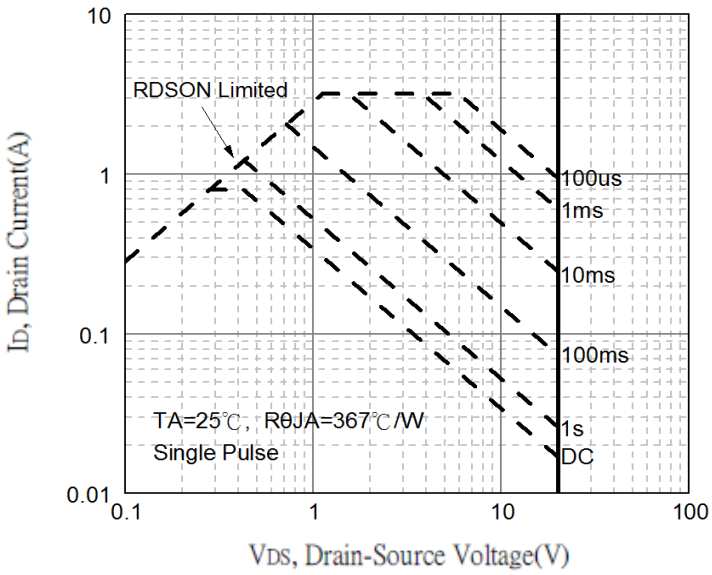
Capacitance vs Drain-to-Source Voltage



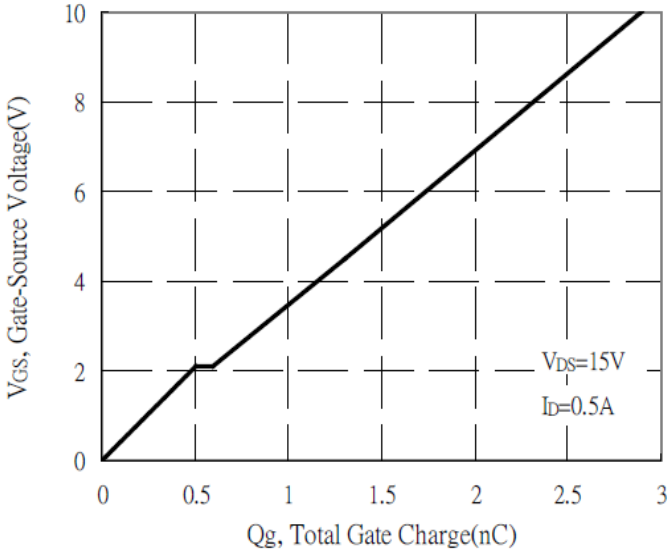
Threshold Voltage vs Junction Tempearture



Maximum Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves