Elektronische Bauelemente

SGM1K35N20

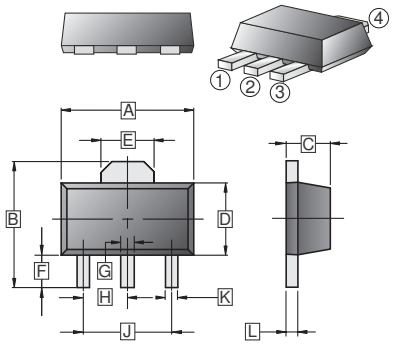
1.6A, 200V, $R_{DS(ON)}$ 1.35Ω
N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SGM1K35N20 is the highest performance trench dual N-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications .
The SGM1K35N20 meet the RoHS and Green Product requirement with full function reliability approved.

SOT-89

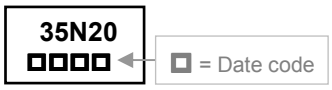


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.60	G	0.40	0.58
B	3.94	4.25	H	1.50 TYP	
C	1.40	1.60	J	3.00 TYP	
D	2.25	2.60	K	0.32	0.52
E	1.55 TYP.		L	0.35	0.44
F	0.89	1.20			

FEATURES

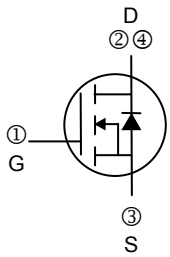
- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-89	1K	7 inch



ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current @V_{GS}=10V [1]	T_A=25°C	I_D	1.6	A
	T_A=70°C		1.2	A
Pulsed Drain Current [4]		I_{DM}	4	A
Total Power Dissipation [2]	T_A=25°C	P_D	1.25	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	36	°C / W
Maximum Thermal Resistance from Junction to Ambient [2]			100	
Maximum Thermal Resistance from Junction to Ambient [3]			250	

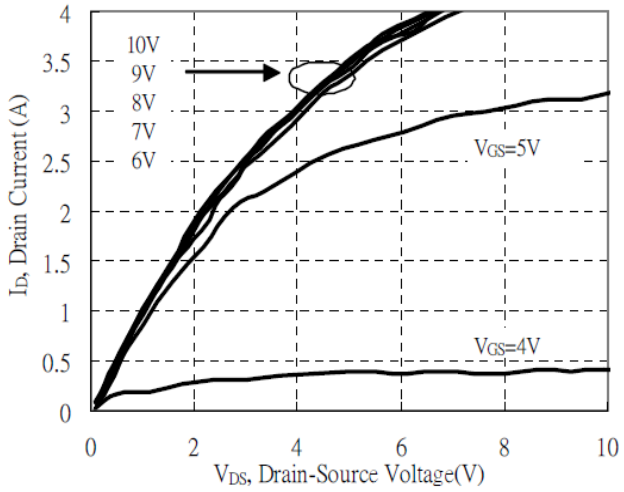
ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	200	-	-	V	V_{GS}=0, I_D=250uA
Gate Threshold Voltage	$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transfer conductance	gfs	-	1.9	-	S	V_{DS}=5V, I_D=0.5A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	uA	V_{DS}=160V, V_{GS}=0
Static Drain-Source On-Resistance [5]	$R_{DS(ON)}$	-	-	1.35	Ω	V_{GS}=10V, I_D=1A
Total Gate Charge	Q_g	-	5.8	-	nC	I_D=1A V_{DS}=160V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	0.7	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	2.5	-		
Turn-On Delay Time	$T_{d(on)}$	-	33	-	nS	V_{DD}=100V I_D=1A V_{GS}=10V R_G=25Ω
Rise Time	T_r	-	50	-		
Turn-Off Delay Time	$T_{d(off)}$	-	150	-		
Fall Time	T_f	-	75	-		
Input Capacitance	C_{iss}	-	137	-	pF	V_{GS}=0 V_{DS}=25V f=1MHz
Output Capacitance	C_{oss}	-	15	-		
Reverse Transfer Capacitance	C_{rss}	-	6	-		
Source-Drain Diode						
Continuous Source Current [1]	I_S	-	-	1.6	A	
Pulsed Source Current [4]	I_{SM}	-	-	4		
Forward On Voltage [5]	V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0V
Reverse Recovery Time	t_{rr}	-	90	-	nS	I_F=1A , dI/dt=100A/μs ,
Reverse Recovery Charge	Q_{rr}	-	280	-	nC	T_J=25°C

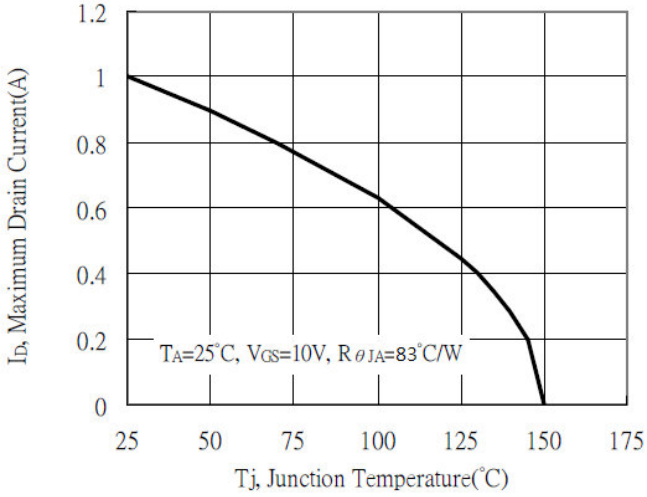
Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper., t≦5sec
2. Surface mount on Min. copper pad of FR4 board., t≦10sec
3. Surface mount on Min. copper pad of FR4 board.
4. Pulse width limited by maximum junction temperature.
5. Pulse test :Pulse width ≦ 300us , Duty cycle ≦ 2%

TYPICAL CHARACTERISTIC CURVES

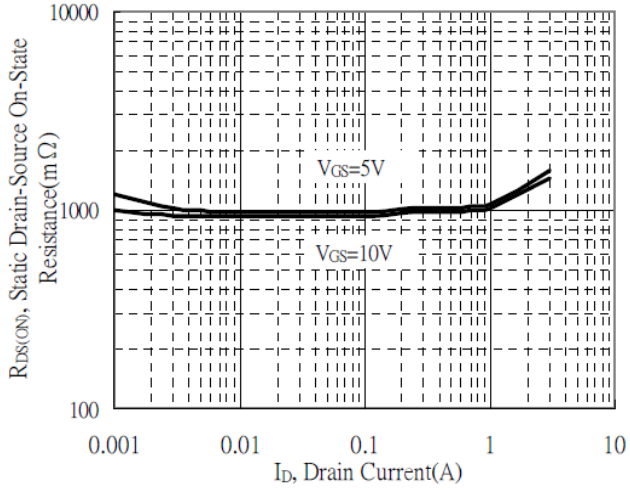
Typical Output Characteristics



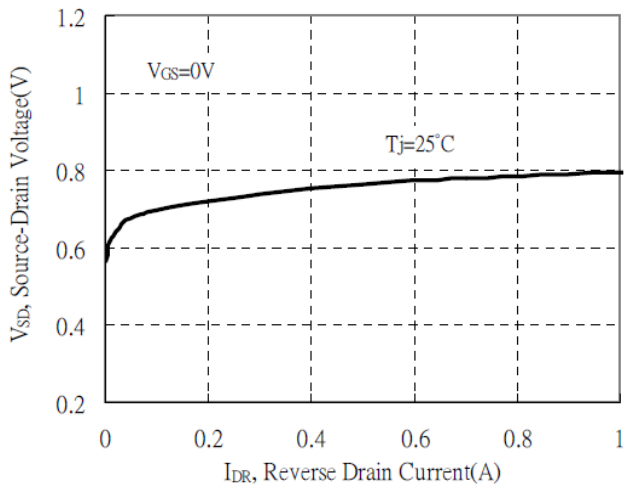
Maximum Drain Current vs Junction Temperature



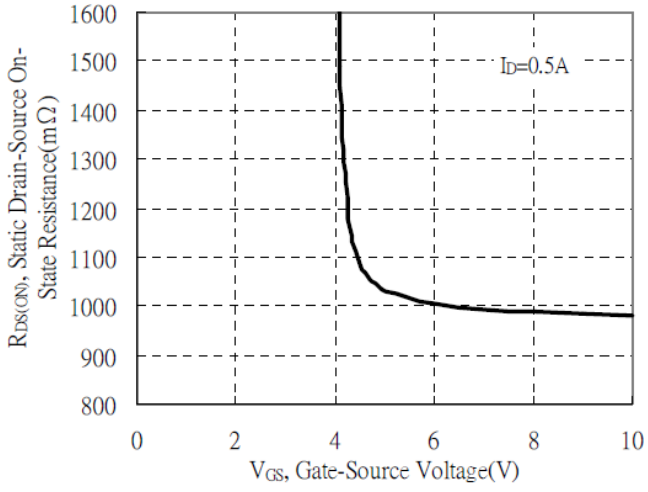
Static Drain-Source On-State resistance vs Drain Current



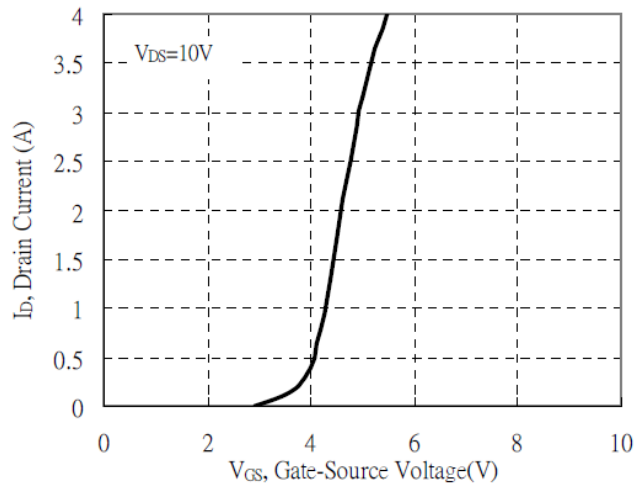
Reverse Drain Current vs Source-Drain Voltage



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

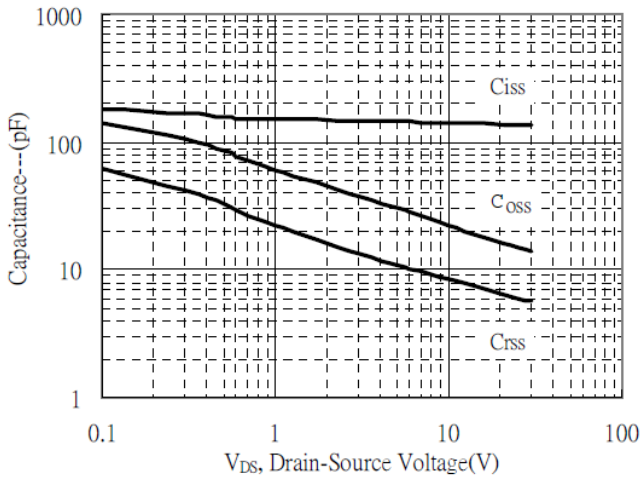


Typical Transfer Characteristics

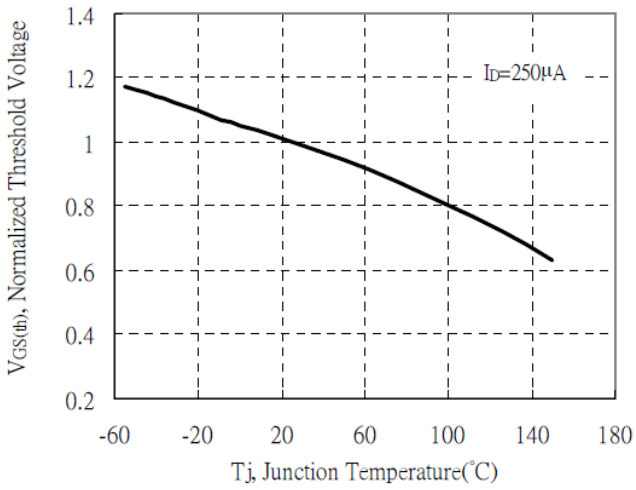


TYPICAL CHARACTERISTIC CURVES

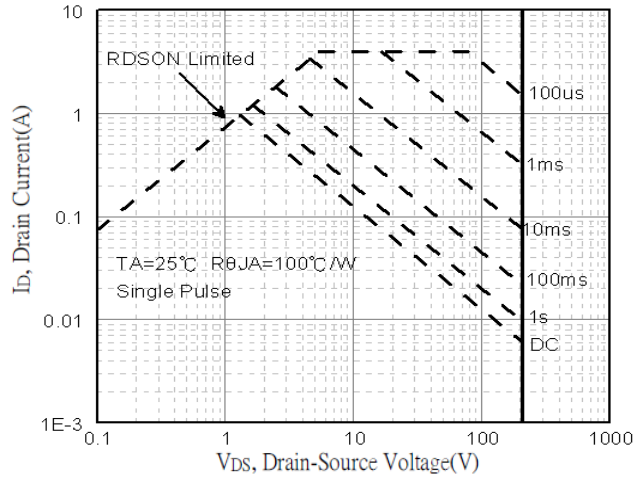
Capacitance vs Drain-to-Source Voltage



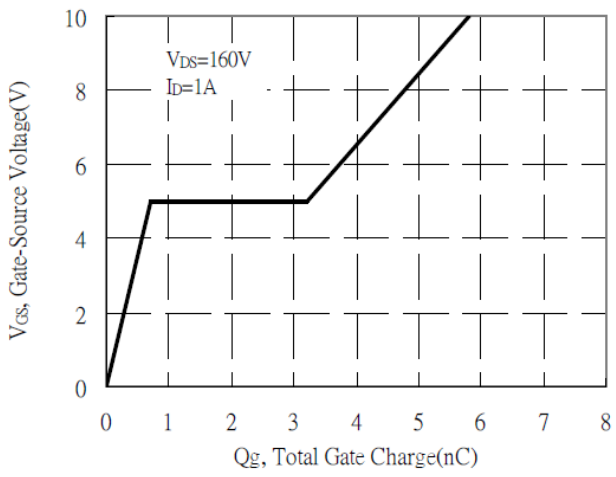
Threshold Voltage vs Junction Tempearture



Maximum Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves