

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.

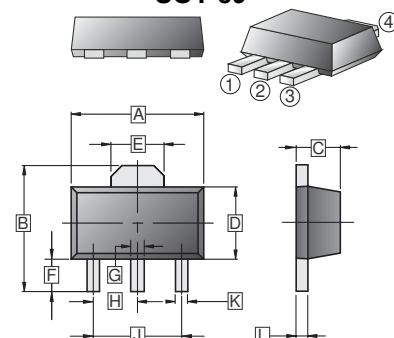
FEATURES

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

MARKING



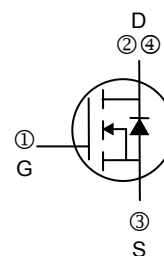
SOT-89



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			

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-89	1K	7 inch



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ 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	$T_A=25^{\circ}C$	I_D	1.6	A
	$T_A=70^{\circ}C$		1.2	A
Pulsed Drain Current ⁴		I_{DM}	4	A
Total Power Dissipation ²	$T_A=25^{\circ}C$	P_D	1.25	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Thermal Resistance Rating				
Maximum Thermal Resistance from Junction to Ambient ¹		$R_{\theta JA}$	36	$^{\circ}C / W$
Maximum Thermal Resistance from Junction to Ambient ²			100	
Maximum Thermal Resistance from Junction to Ambient ³			250	

ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

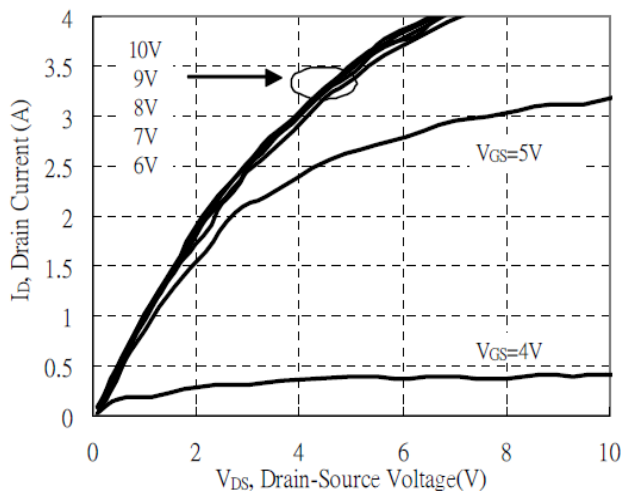
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV _{DSS}	200	-	-	V	V _{GS} =0, I _D =250uA
Gate Threshold Voltage	V _{GS(th)}	2	-	4	V	V _{DS} =V _{GS} , I _D =250uA
Forward Transfer conductance	g _{fs}	-	1.9	-	S	V _{DS} =5V, I _D =0.5A
Gate-Source Leakage Current	I _{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 , T _J =25°C
Reverse Recovery Charge	Q _{rr}	-	280	-	nC	

Notes:

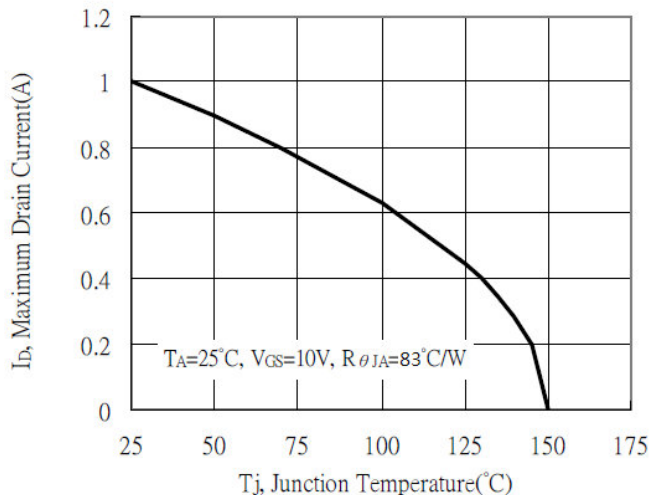
1. Surface mounted on a 1 inch² FR-4 board with 20Z copper., $t \leq 5\text{sec}$
2. Surface mount on Min. copper pad of FR4 board., $t \leq 10\text{sec}$
3. Surface mount on Min. copper pad of FR4 board.
4. Pulse width limited by maximum junction temperature.
5. Pulse test :Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

TYPICAL CHARACTERISTIC CURVES

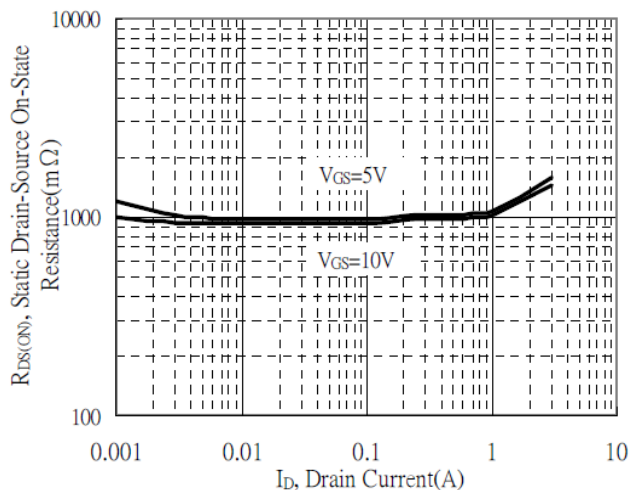
Typical Output Characteristics



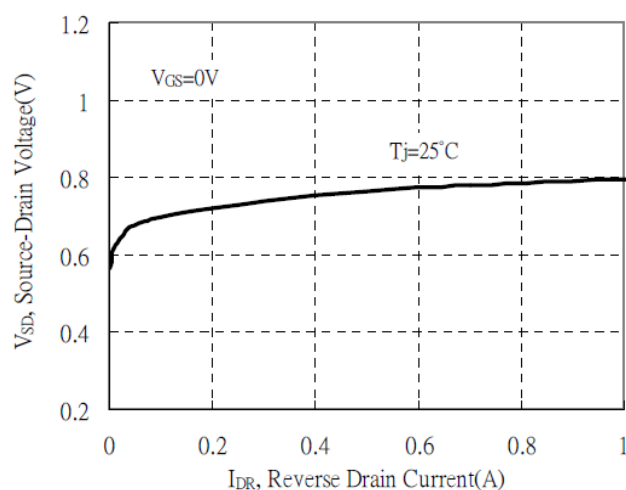
Maximum Drain Current vs Junction Temperature



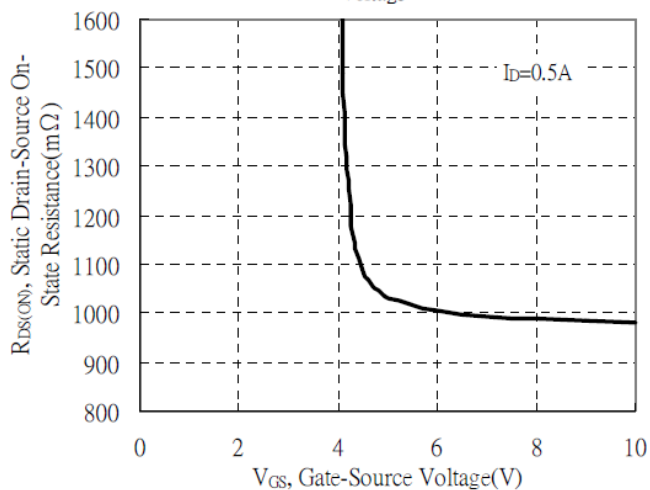
Static Drain-Source On-State resistance vs Drain Current



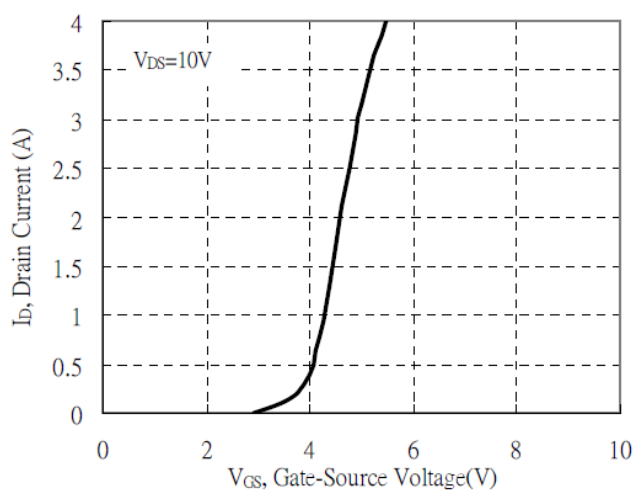
Reverse Drain Current vs Source-Drain Voltage



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



Typical Transfer Characteristics



TYPICAL CHARACTERISTIC CURVES

