Elektronische Bauelemente

SMG3314

-1.9A, -30V, $R_{DS(ON)}$ 240mΩ

P-Channel Enhancement Mode Power Mos.FET

RoHS Compliant Product

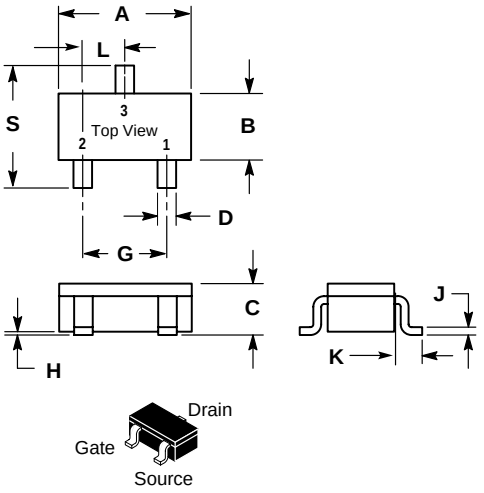
Description

The SMG3314 provide the designer with the best combination of fast switching, low on-resistance and cost-effectiveness.

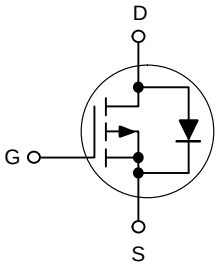
Features

* Ultrahigh-Speed Switching
* 4V Drive
* Low On-Resistance

Marking : 3314



SC-59		
Dim	**Min**	**Max**
A	2.70	3.10
B	1.40	1.60
C	1.00	1.30
D	0.35	0.50
G	1.70	2.10
H	0.00	0.10
J	0.10	0.26
K	0.20	0.60
L	0.85	1.15
S	2.40	2.80
All Dimension in mm		



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current [3]	I_D@T_A=25℃	-1.9	A
Continuous Drain Current [3]	I_D@T_A=70℃	-1.5	A
Pulsed Drain Current[1,2]	I_{DM}	-10	A
Total Power Dissipation	P_D@T_A=25℃	1.38	W
Linear Derating Factor		0.01	W/℃
Operating Junction and Storage Temperature Range	Tj, Tstg	-55~+150	℃

Thermal Data

Parameter		Symbol	Ratings	Unit
Thermal Resistance Junction-ambient [3]	Max.	Rthj-a	90	℃/W

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Electrical Characteristics(Tj=25°C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	-30	–	–	V	V_{GS}=0V, I_D=-250uA
Breakdown Voltage Temp. Coefficient	$\triangle BV_{DS}/\triangle Tj$	–	-0.1	–	V/°C	Reference to 25°C, I_D=-1mA
Gate Threshold Voltage	$V_{GS(th)}$	-1.0	–	–	V	V_{DS}=V_{GS}, I_D=-250uA
Gate-Source Leakage Current	I_{GSS}	–	–	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current (Tj=25°C)	I_{DSS}	–	–	-1	uA	V_{DS}=-30V,V_{GS}=0
Drain-Source Leakage Current (Tj=70°C)		–	–	-10	uA	V_{DS}=-30V,V_{GS}=0
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	–	–	240	mΩ	V_{GS}=-10V, I_D=-1.7A
		–	–	270		V_{GS}=-10V, I_D=-0.8A
		–	–	460		V_{GS}=-4.5V, I_D=-1.3A
		–	–	500		V_{GS}=-4.0V, I_D=-0.4A
Total Gate Charge[2]	Qg	–	6.2	–	nC	I_D=-1.7A V_{DS}=-15V V_{GS}=-10V
Gate-Source Charge	Qgs	–	1.4	–		
Gate-Drain ("Miller") Charge	Qgd	–	0.3	–		
Turn-on Delay Time[2]	$Td_{(ON)}$	–	7.6	–	nS	V_{DS}=-15V I_D=-1A V_{GS}=-10V R_G=6Ω R_D=15Ω
Rise Time	Tr	–	8.2	–		
Turn-off Delay Time	$Td_{(Off)}$	–	17.5	–		
Fall Time	T_f	–	9	–		
Input Capacitance	Ciss	–	230	–	pF	V_{GS}=0V V_{DS}=-15V f=1.0MHz
Output Capacitance	Coss	–	130.4	–		
Reverse Transfer Capacitance	Crss	–	40	–		
Forward Transconductance	Gfs	–	2	–	S	V_{DS}=-10V, I_D=-1.7A

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Forward On Voltage[2]	V_{SD}	–	–	-1.2	V	I_S=-1.25A, V_{GS}=0V.
Continuous Source Current (Body Diode)	I_S	–	–	-1	A	V_D=V_G=0V,V_S=-1.2V
Pulsed Source Current (Body Diode)[1]	I_{SM}	–	–	-6.4	A	

Notes: 1.Pulse width limited by Max. junction temperature.

2.Pulse width≦300us, dutycycle≦2%.

3.Surface mounted on 1 inch$_2$ copper pad of FR4 board; 270°C/W when mounted on min. copper pad.

Characteristics Curve

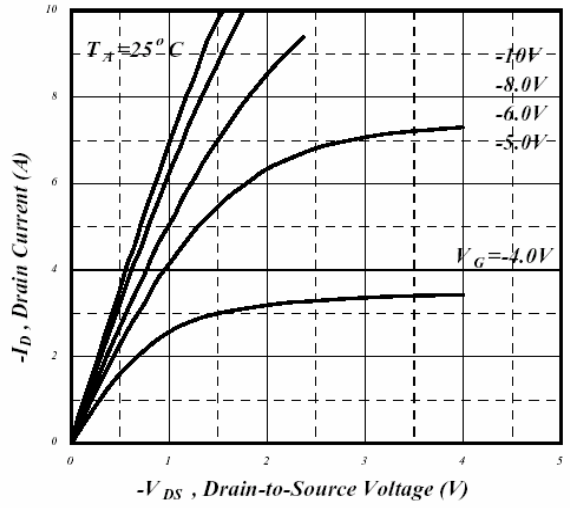


Fig 1. Typical Output Characteristics

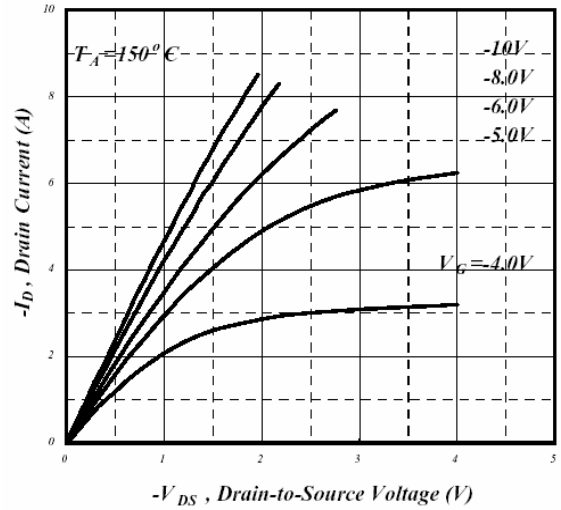


Fig 2. Typical Output Characteristics

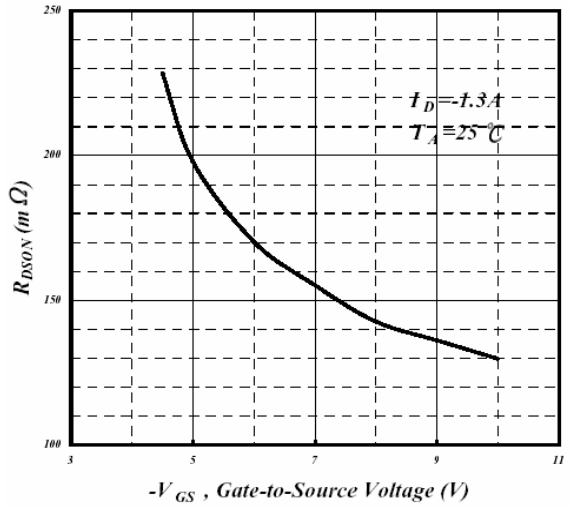


Fig 3. On-Resistance v.s. Gate Voltage

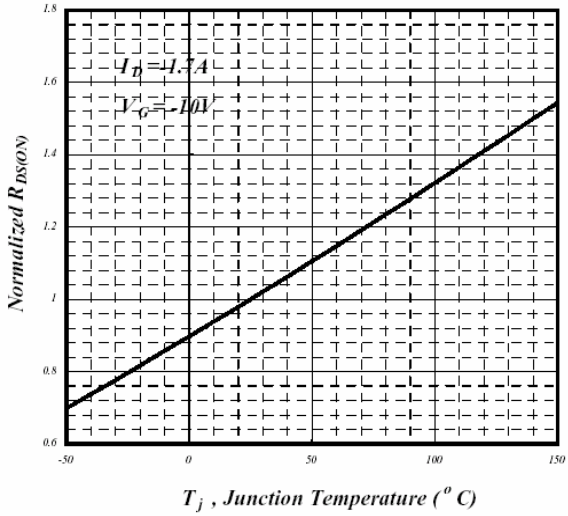


Fig 4. Normalized On-Resistance

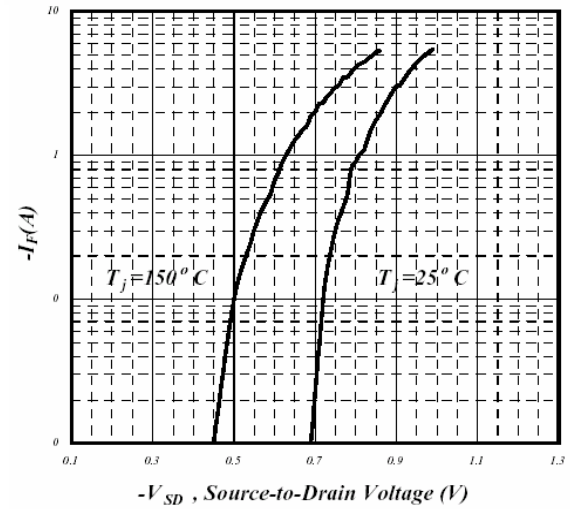


Fig 5. Forward Characteristic of Reverse Diode

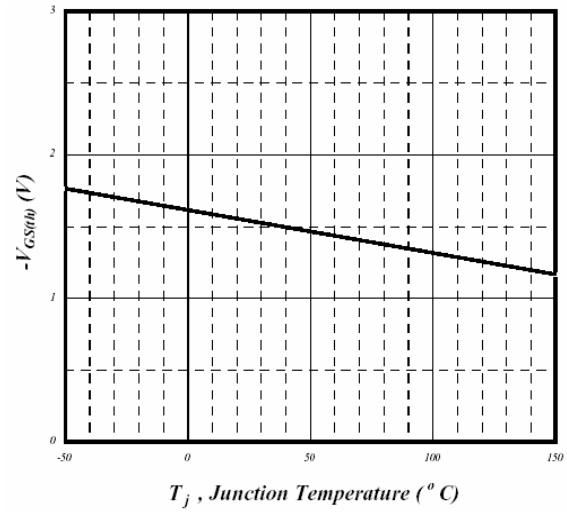


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

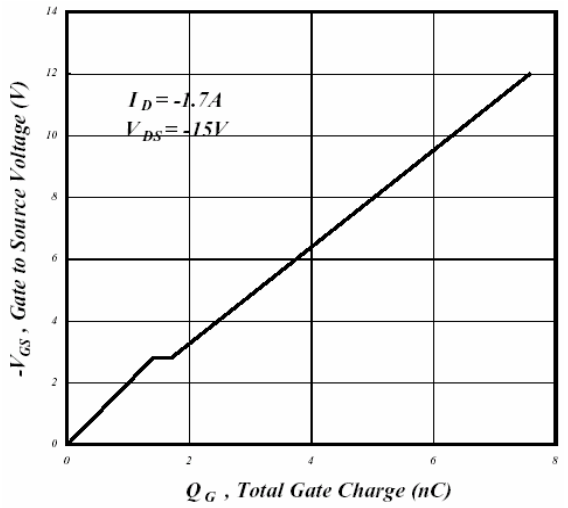


Fig 7. Gate Charge Characteristics

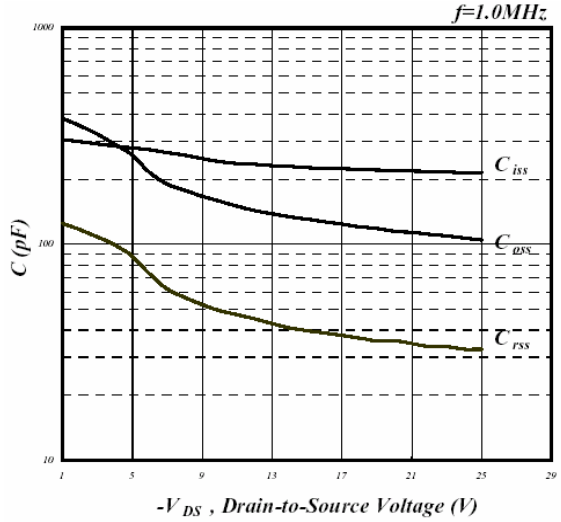


Fig 8. Typical Capacitance Characteristics

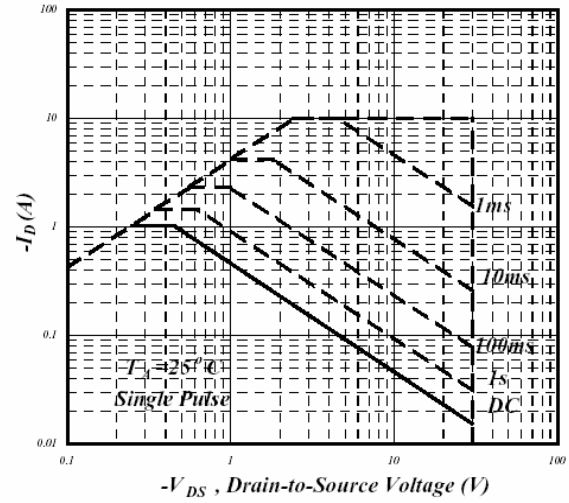


Fig 9. Maximum Safe Operating Area

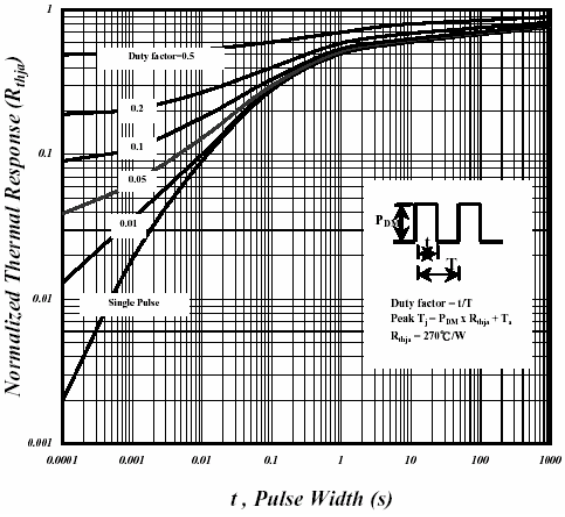


Fig 10. Effective Transient Thermal Impedance

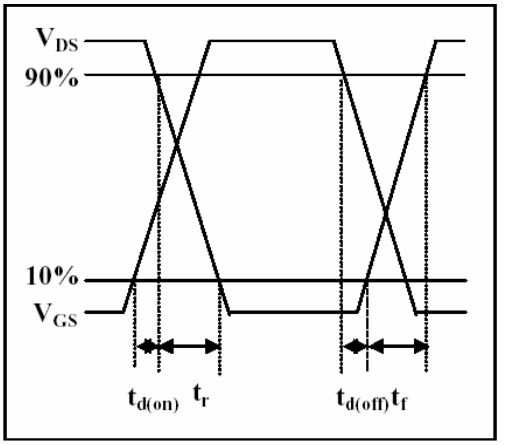


Fig 11. Switching Time Waveform

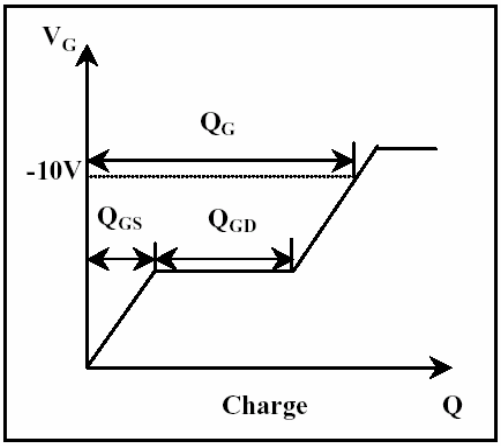


Fig 12. Gate Charge Waveform