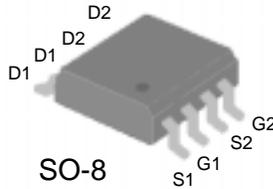


DUAL N-CANNEL ENHANCEMENT-MODE POWER MOSFET

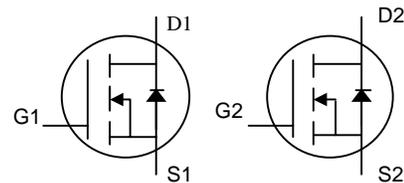
Low on-resistance
Simple drive requirement
High V_{GS} rating



BV_{DSS} 30V
 $R_{DS(ON)}$ 18m Ω
 I_D 8.2A

Description

Advanced Power MOSFETs from Silicon Standard provide the designer with the best combination of fast switching, ruggedized device design, ultra low on-resistance and cost-effectiveness.



Pb This device is available with Pb-free lead finish (second-level interconnect) as SSM4226GM.

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_A=25^\circ\text{C}$	Continuous Drain Current ³	8.2	A
$I_D @ T_A=70^\circ\text{C}$	Continuous Drain Current ³	6.7	A
I_{DM}	Pulsed Drain Current ¹	30	A
$P_D @ T_A=25^\circ\text{C}$	Total Power Dissipation	2	W
	Linear Derating Factor	0.016	W/ $^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Thermal Resistance Junction-ambient ³	Max. 62.5	$^\circ\text{C}/\text{W}$

Electrical Characteristics @ T_j=25°C (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	-	-	V
ΔB V _{DSS} /ΔT _j	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D =1mA	-	0.03	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =6A	-	-	18	mΩ
		V _{GS} =4.5V, I _D =4A	-	-	28	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	-	3	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =6A	-	15	-	S
I _{DSS}	Drain-Source Leakage Current (T _j =25°C)	V _{DS} =30V, V _{GS} =0V	-	-	1	uA
	Drain-Source Leakage Current (T _j =70°C)	V _{DS} =24V, V _{GS} =0V	-	-	25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} = ± 20V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =8A	-	20	30	nC
Q _{gs}	Gate-Source Charge	V _{DS} =24V	-	5	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	12	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =15V	-	12	-	ns
t _r	Rise Time	I _D =1A	-	8	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =10V	-	31	-	ns
t _f	Fall Time	R _D =15Ω	-	12	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	1450	2320	pF
C _{oss}	Output Capacitance	V _{DS} =25V	-	320	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	230	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =1.7A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time	I _S =8A, V _{GS} =0V,	-	27	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	18	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse width ≤300us , duty cycle ≤2%.
- 3.Surface mounted on 1 in² copper pad of FR4 board ; 135°C/Wwhen mounted on Min. copper pad.

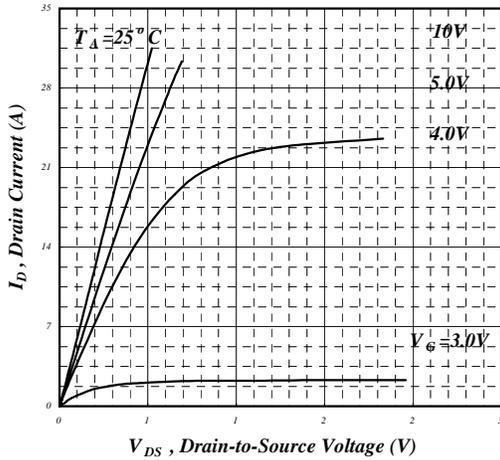


Fig 1. Typical Output Characteristics

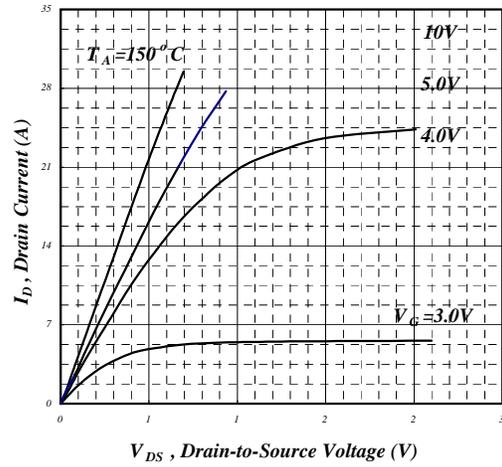


Fig 2. Typical Output Characteristics

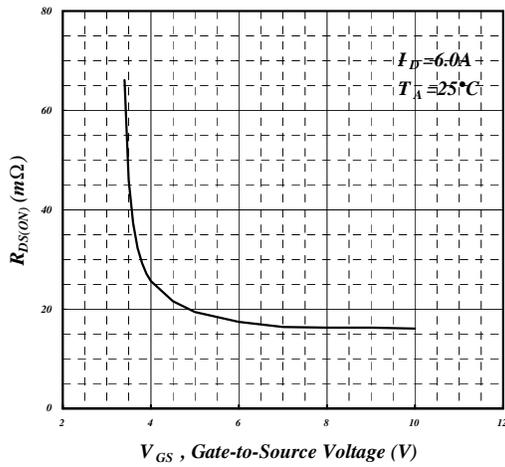


Fig 3. On-Resistance vs. Gate Voltage

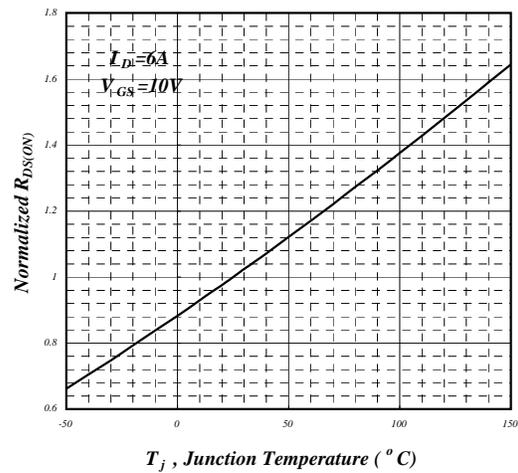


Fig 4. Normalized On-Resistance vs. Junction Temperature

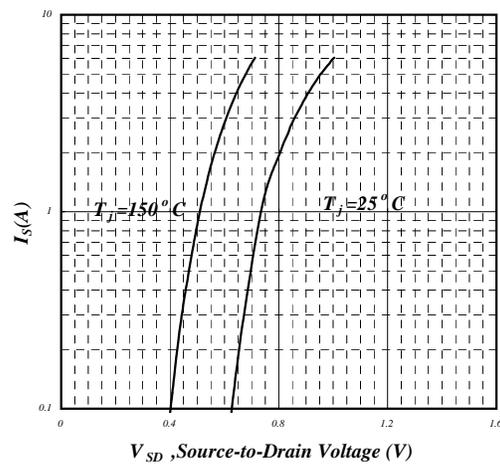


Fig 5. Forward Characteristic of Reverse Diode

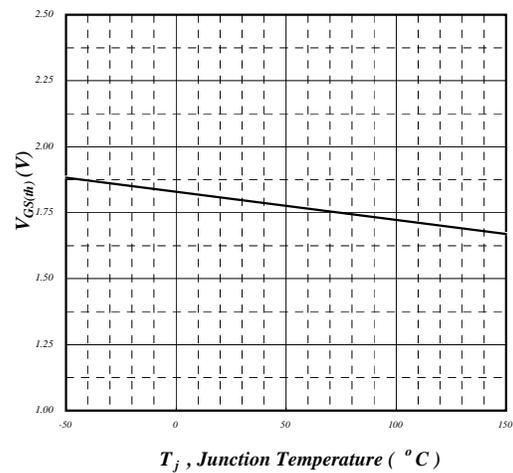


Fig 6. Gate Threshold Voltage vs. Junction Temperature

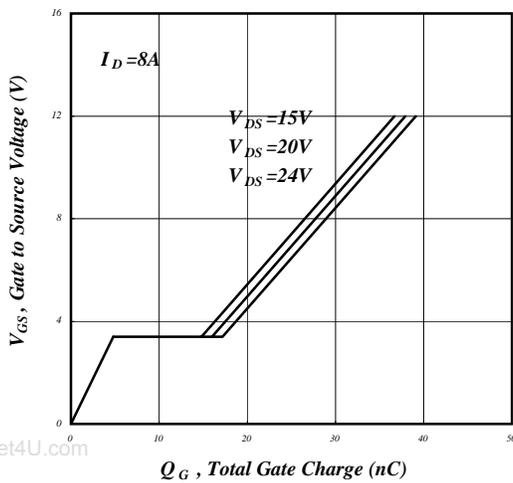


Fig 7. Gate Charge Characteristics

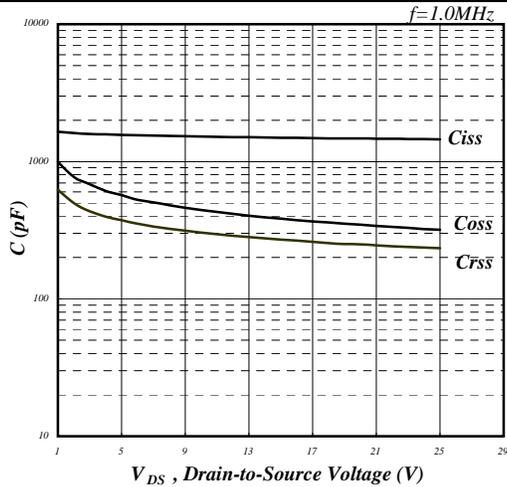


Fig 8. Typical Capacitance Characteristics

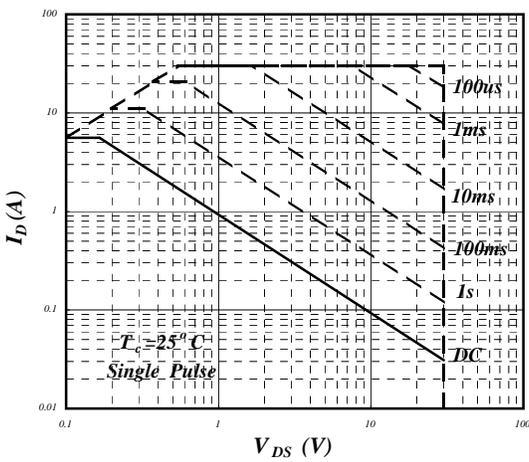


Fig 9. Maximum Safe Operating Area

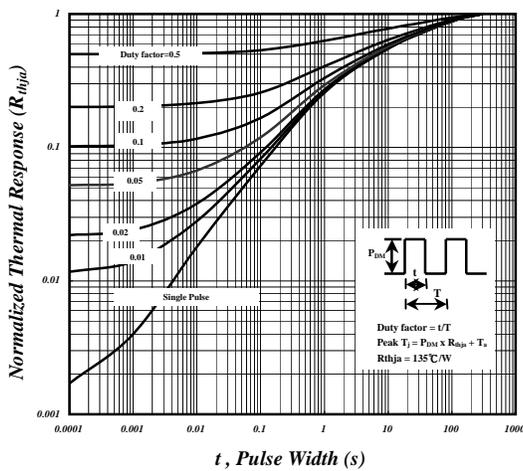


Fig 10. Effective Transient Thermal Impedance

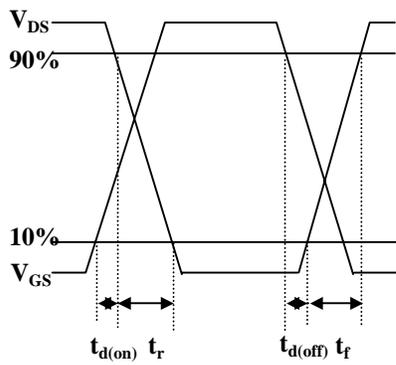


Fig 11. Switching Time Waveform

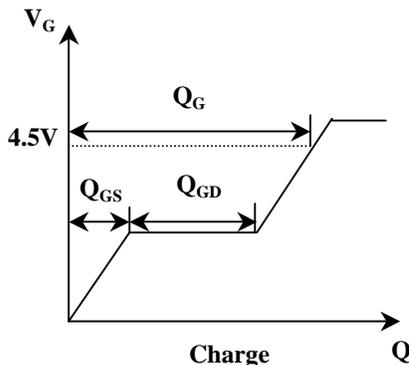


Fig 12. Gate Charge Waveform

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