

GTM CORPORATION

ISSUED DATE :2005/01/07
REvised DATE :2005/09/29C

GSS9926E

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	20V
RDS(ON)	30mΩ
ID	6A

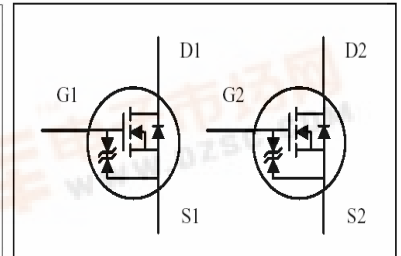
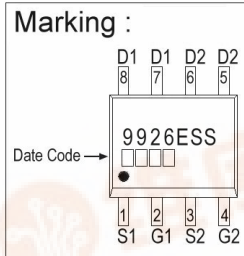
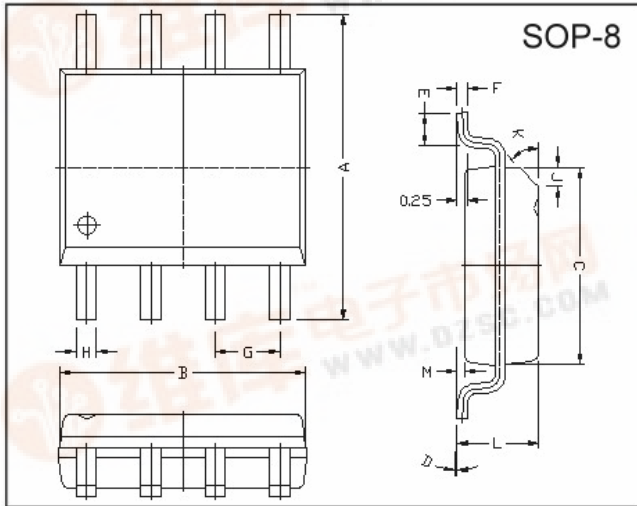
Description

The GSS9926E provides the designer with the best combination of fast switching, ruggedized device design, ultra low on-resistance and cost-effectiveness.

Features

- *Low on-resistance
- *Capable of 2.5V gate drive
- *Low drive current
- *Surface mount package

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	M	0.10	0.25
B	4.80	5.00	H	0.35	0.49
C	3.80	4.00	L	1.35	1.75
D	0°	8°	J	0.375 REF.	
E	0.40	0.90	K	45°	
F	0.19	0.25	G	1.27 TYP.	

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current ³ , $V_{GS}@10V$	$I_D @TA=25^{\circ}C$	6.0	A
Continuous Drain Current ³ , $V_{GS}@10V$	$I_D @TA=70^{\circ}C$	4.8	A
Pulsed Drain Current ¹	I_{DM}	20	A
Total Power Dissipation	$P_D @TA=25^{\circ}C$	2	W
Linear Derating Factor		0.016	W/°C
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient ³ Max.	R_{thj-a}	62.5	°C/W

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	20	-	-	V	V _{GS} =0, I _D =250uA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_j$	-	0.1	-	V/°C	Reference to 25°C, I _D =1mA
Gate Threshold Voltage	V _{GS(th)}	0.5	-	-	V	V _{DS} =V _{GS} , I _D =250uA
Forward Transconductance	g _{fs}	-	15.6	-	S	V _{DS} =10V, I _D =6A
Gate-Source Leakage Current	I _{GSS}	-	-	±10	uA	V _{GS} = ±10V
Drain-Source Leakage Current(T _j =25°C)	I _{DSS}	-	-	1	uA	V _{DS} =20V, V _{GS} =0
Drain-Source Leakage Current(T _j =70°C)		-	-	25	uA	V _{DS} =20V, V _{GS} =0
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	30	mΩ	V _{GS} =4.5V, I _D =6.0A
		-	-	45		V _{GS} =2.5V, I _D =5.2A
Total Gate Charge ²	Q _g	-	12.5	-	nC	I _D =6A V _{DS} =20V V _{GS} =5V
Gate-Source Charge	Q _{gs}	-	1	-		
Gate-Drain ("Miller") Charge	Q _{gd}	-	6.5	-		
Turn-on Delay Time ²	T _{d(on)}	-	5	-	ns	V _{DS} =10V I _D =1A V _{GS} =5V R _G =3.3Ω R _D =10Ω
Rise Time	T _r	-	9	-		
Turn-off Delay Time	T _{d(off)}	-	26.2	-		
Fall Time	T _f	-	6.8	-		
Input Capacitance	C _{iss}	-	355	-	pF	V _{GS} =0V V _{DS} =20V f=1.0MHz
Output Capacitance	C _{oss}	-	190	-		
Reverse Transfer Capacitance	C _{rss}	-	85	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V _{SD}	-	-	1.2	V	I _S =1.7A, V _{GS} =0V, T _j =25°C
Continuous Source Current(Body Diode)	I _S	-	-	1.67	A	V _D =V _G =0V, V _S =1.2V

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/W when mounted on Min. copper pad.

Characteristics Curve

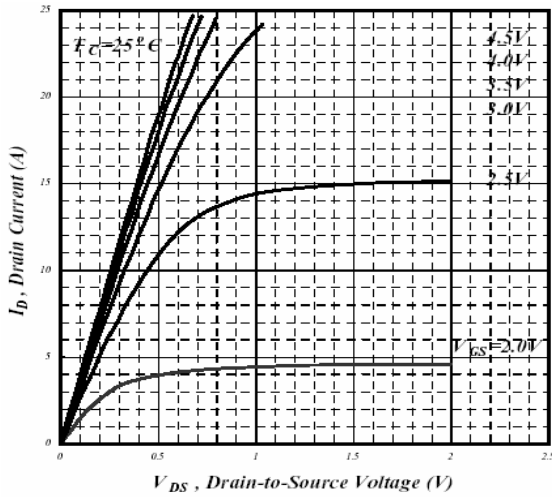


Fig 1. Typical Output Characteristics

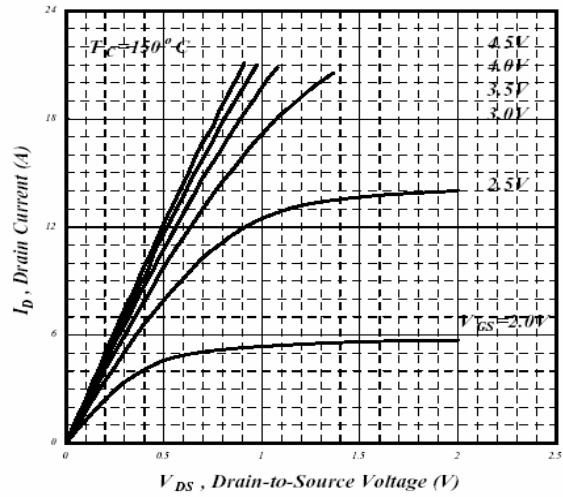


Fig 2. Typical Output Characteristics

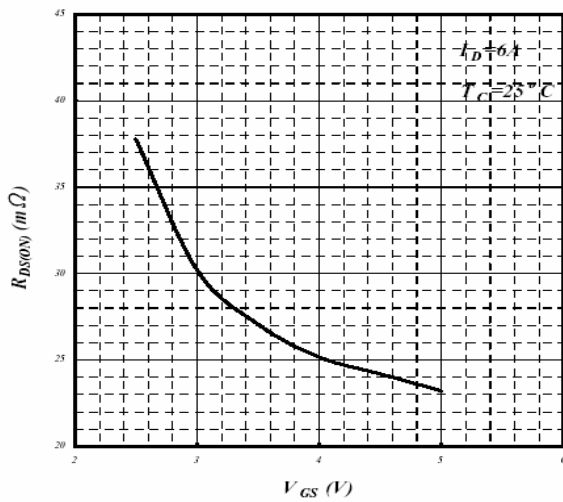


Fig 3. On-Resistance v.s. Gate Voltage

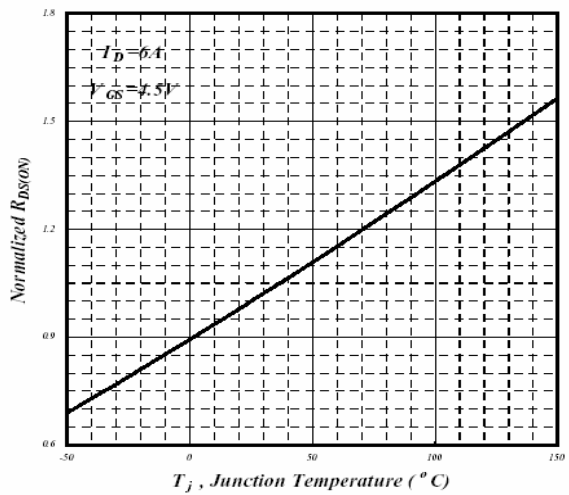


Fig 4. Normalized On-Resistance v.s. Junction Temperature

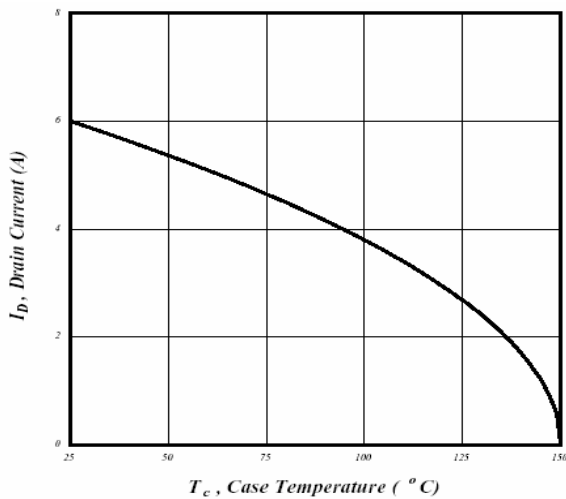


Fig 5. Maximum Drain Current v.s. Case Temperature

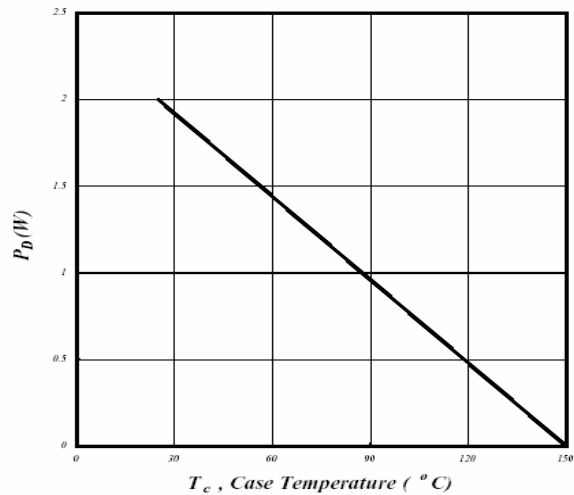


Fig 6. Type Power Dissipation

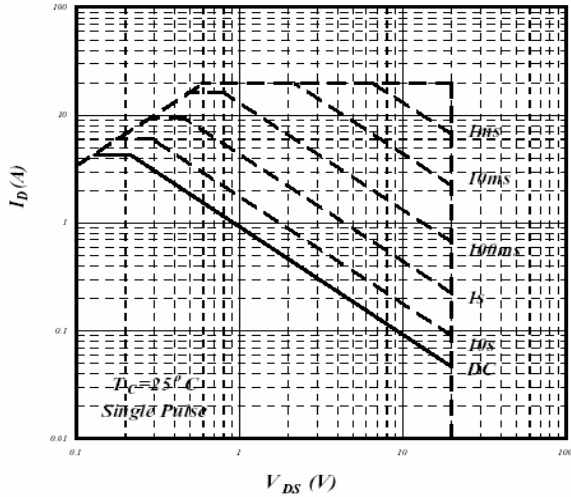


Fig 7. Maximum Safe Operating Area

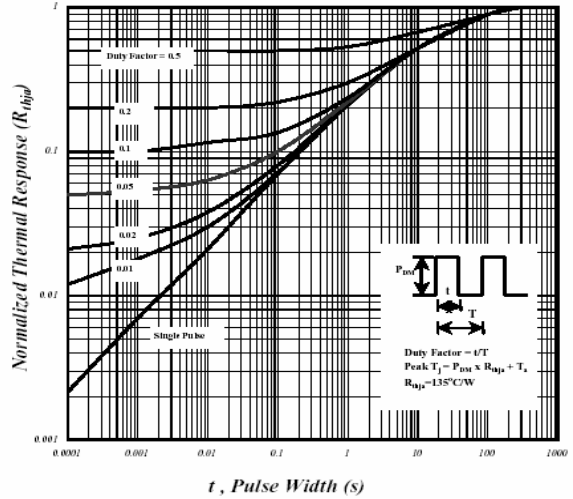


Fig 8. Effective Transient Thermal Impedance

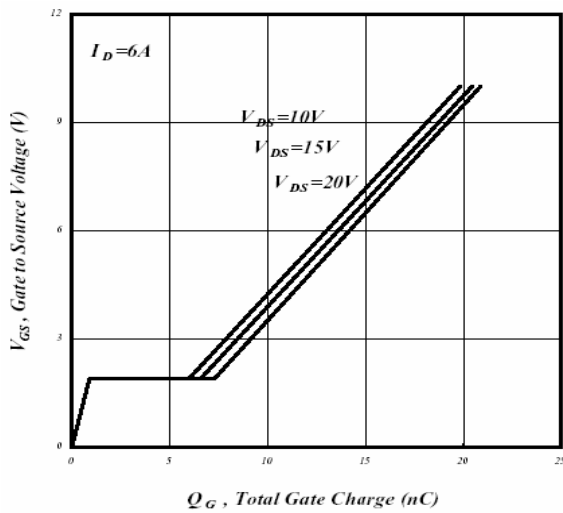


Fig 9. Gate Charge Characteristics

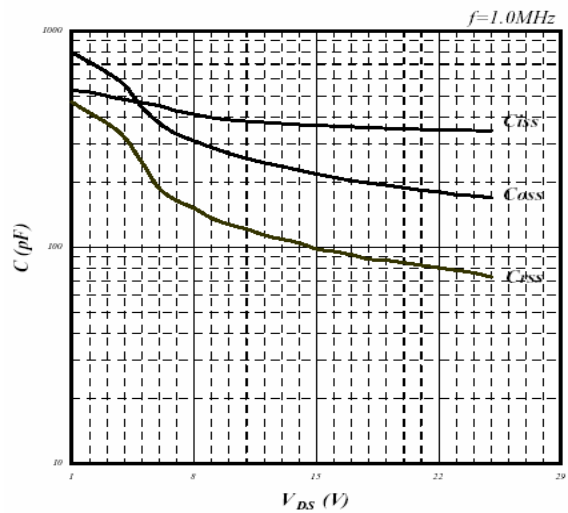


Fig 10. Typical Capacitance Characteristics

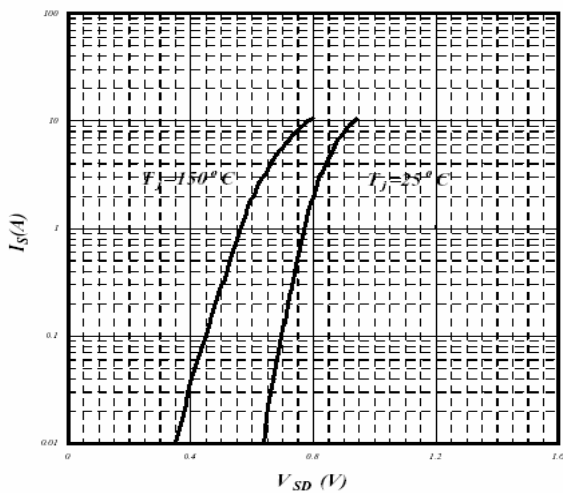


Fig 11. Forward Characteristics of Reverse Diode

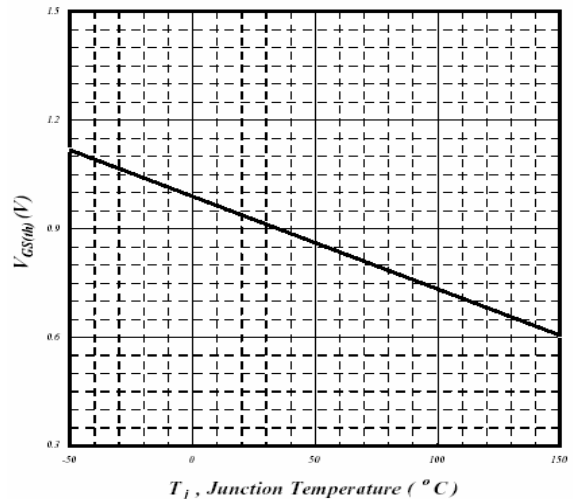


Fig 12. Gate Threshold Voltage v.s. Junction Temperature

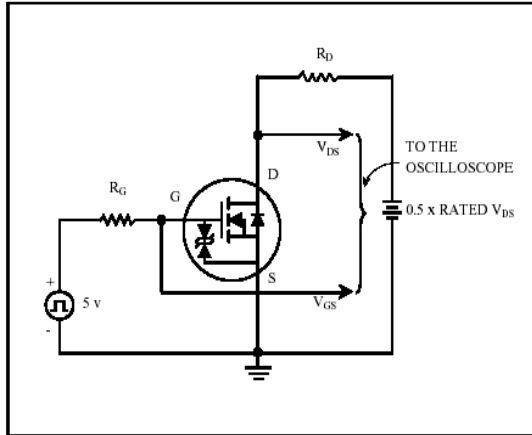


Fig 13. Switching Time Circuit

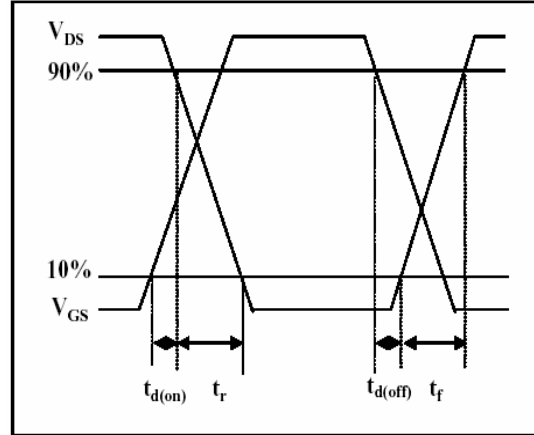


Fig 14. Switching Time Waveform

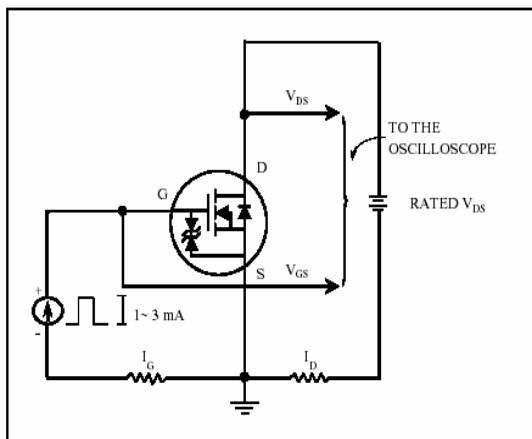


Fig 15. Gate Charge Circuit

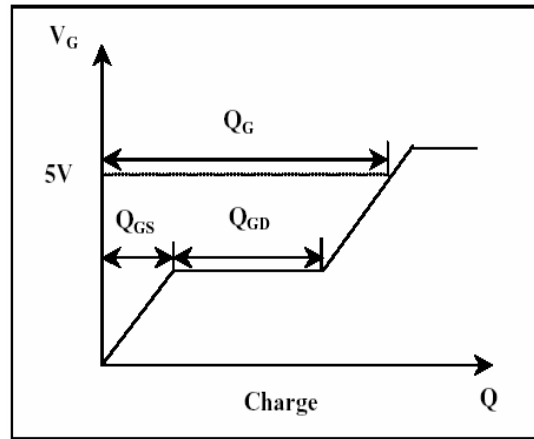


Fig 16. Gate Charge Waveform

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