

GSS4953

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV _{DSS}	-30V
R _{DS(ON)}	53mΩ
I _D	-5A

Description

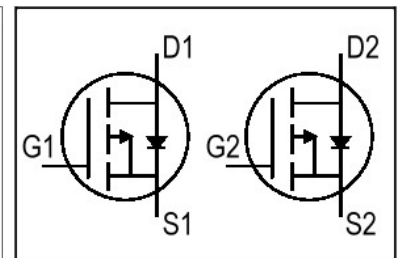
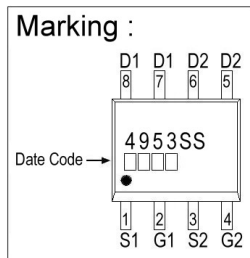
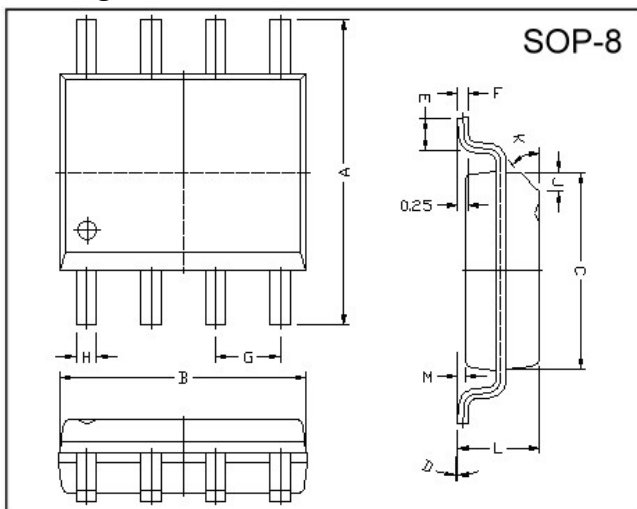
The GSS4953 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The SOP-8 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Features

- *Simple Drive Requirement
- *Lower On-resistance
- *Fast Switching

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}	-30	V
Gate-Source Voltage	V _{GS}	±16	V
Continuous Drain Current ¹	I _D @TA=25°C	-5	A
Continuous Drain Current ¹	I _D @TA=70°C	-4	A
Pulsed Drain Current ²	I _{DM}	-20	A
Total Power Dissipation ¹	P _D @TA=25°C	2	W
Linear Derating Factor		0.02	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 ¹ Max.	R _{thj-amb}	62.5	°C/W

Electrical Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$V_{GS}=0, I_D=-250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	-1.0	-	-2.5	V	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$
Forward Transconductance ²	g_{fs}	-	5	-	S	$V_{DS}=-5\text{V}, I_D=-5\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS} = \pm 16\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	$V_{DS}=-24\text{V}, V_{GS}=0$
Static Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	53	m Ω	$V_{GS}=-10\text{V}, I_D=-5\text{A}$
		-	-	90		$V_{GS}=-4.5\text{V}, I_D=-4\text{A}$
Total Gate Charge ²	Q_g	-	11.7	-	nC	$I_D=-5\text{A}$ $V_{DS}=-15\text{V}$ $V_{GS}=-10\text{V}$
Gate-Source Charge	Q_{gs}	-	2.1	-		
Gate-Drain ("Miller") Change	Q_{gd}	-	2.9	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	9	-	ns	$V_{DS}=-15\text{V}$ $I_D=-1\text{A}$ $V_{GS}=-10\text{V}$ $R_G=6\Omega$ $R_D=15\Omega$
Rise Time	T_r	-	10	-		
Turn-off Delay Time	$T_{d(off)}$	-	37	-		
Fall Time	T_f	-	23	-		
Input Capacitance	C_{iss}	-	582	-	pF	$V_{GS}=0\text{V}$ $V_{DS}=-15\text{V}$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	125	-		
Reverse Transfer Capacitance	C_{rss}	-	86	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V_{SD}	-	-0.84	-1.2	V	$I_S=-1.7\text{A}, V_{GS}=0\text{V}$

Notes: 1. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.

2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

Characteristics Curve

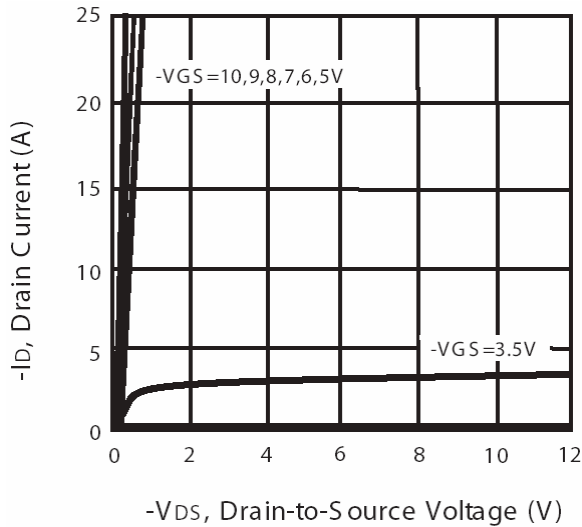


Fig 1. Typical Output Characteristics

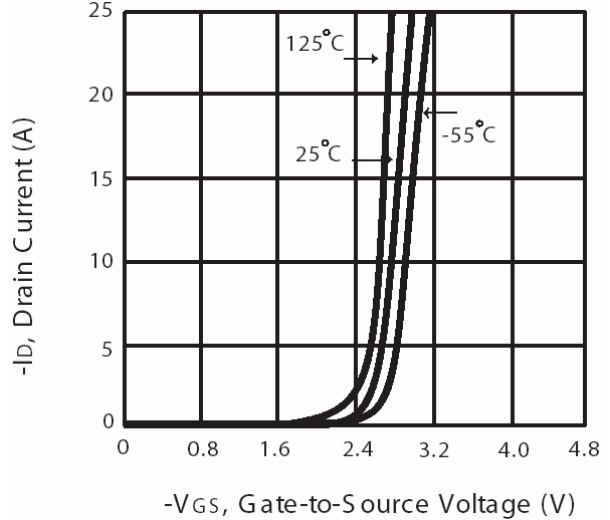


Fig 2. Transfer Characteristics

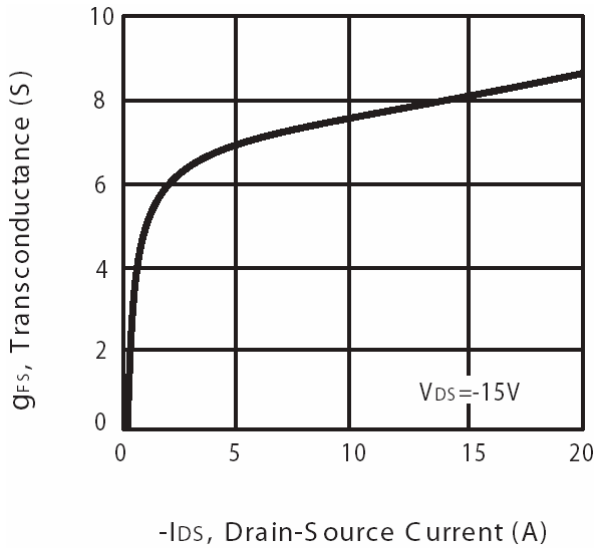


Fig 3. Transconductance v.s. Drain Current

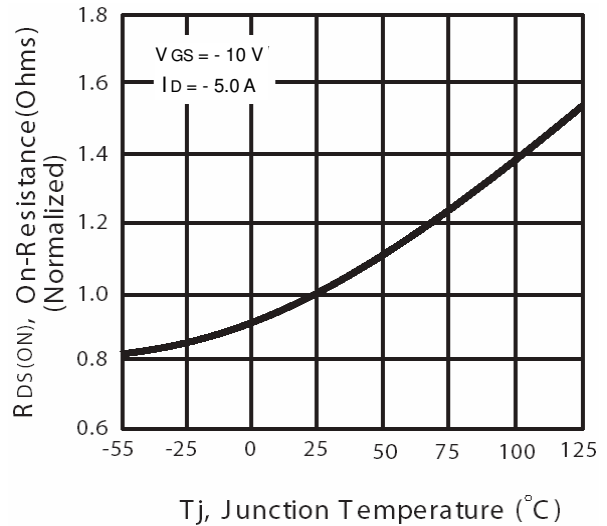


Fig 4. On-Resistance v.s. Junction Temperature

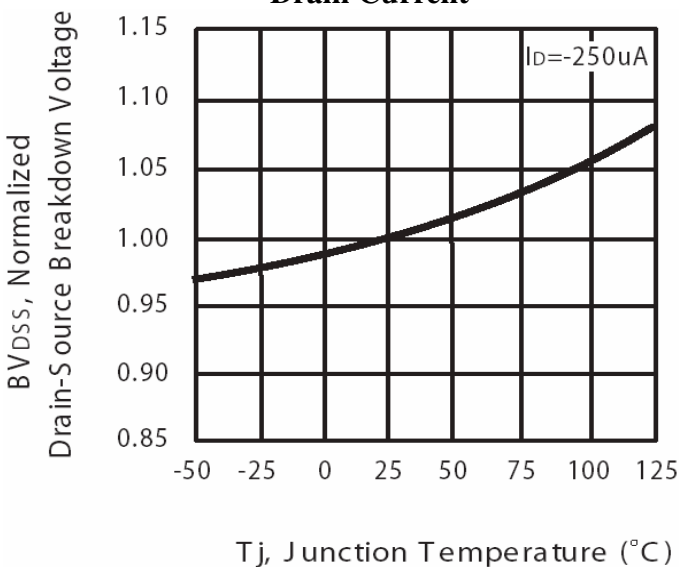


Fig 5. Breakdown Voltage v.s. Junction Temperature

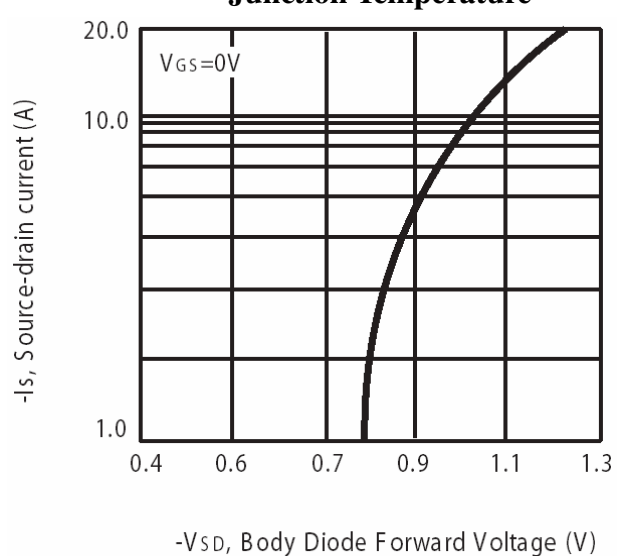


Fig 6. Body Diode Forward Voltage v.s. Source Current

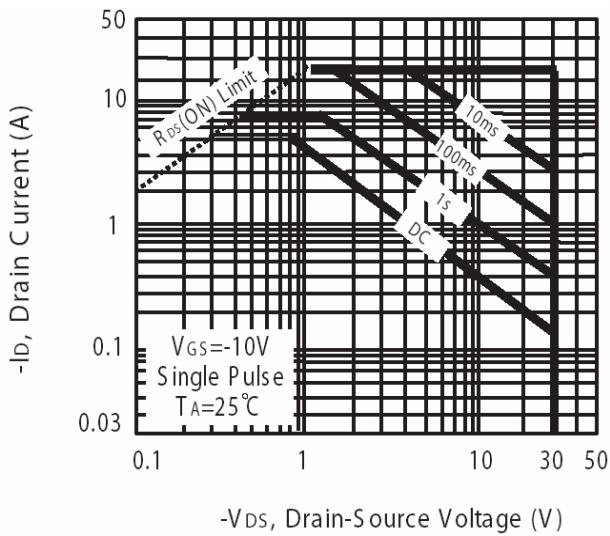


Fig 7. Maximum Safe Operating Area

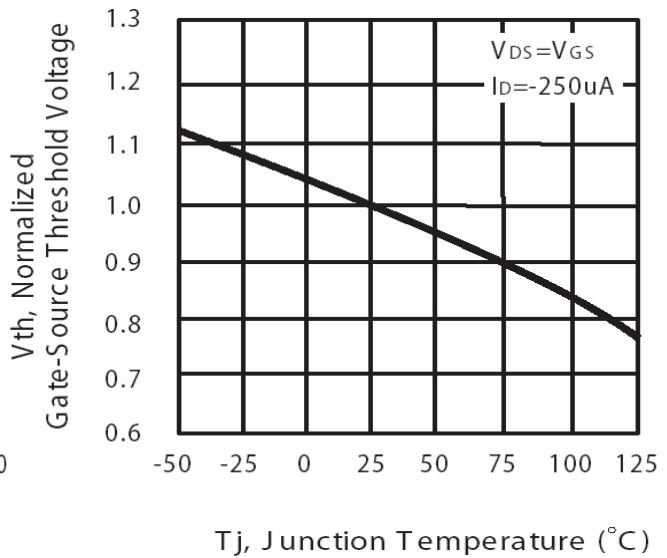


Fig 8. Gate Threshold Voltage v.s. Junction Temperature

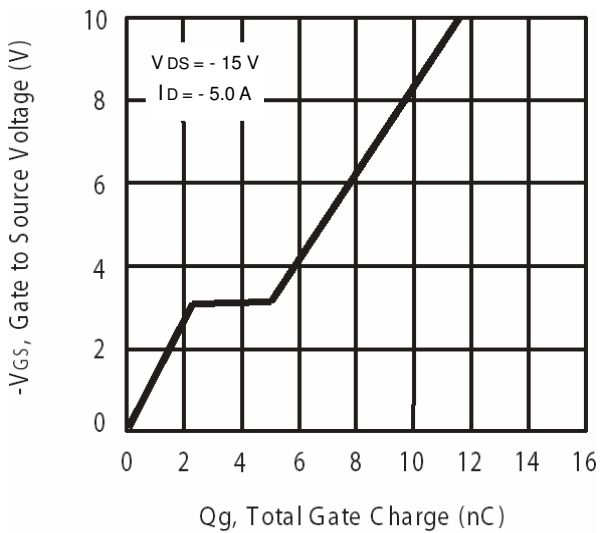


Fig 9. Gate Charge Characteristics

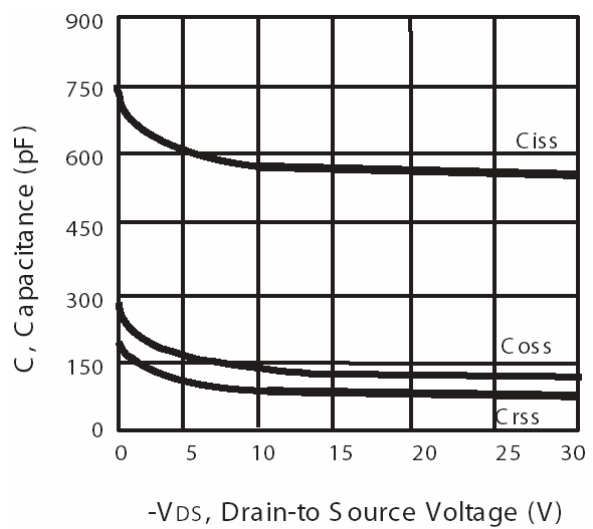


Fig 10. Typical Capacitance Characteristics

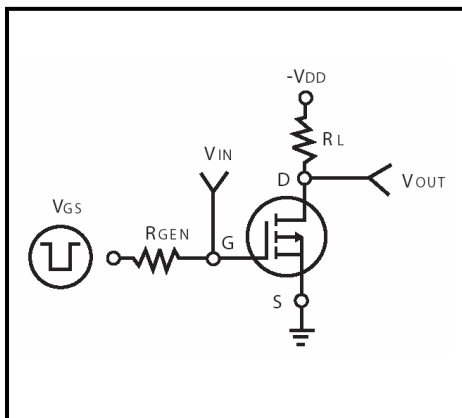


Fig 11. Switching Time Circuit

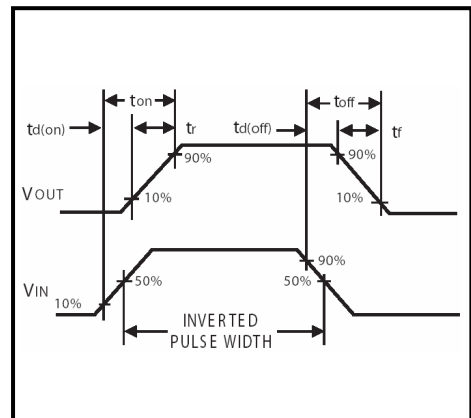


Fig 12. Switching Time Waveform

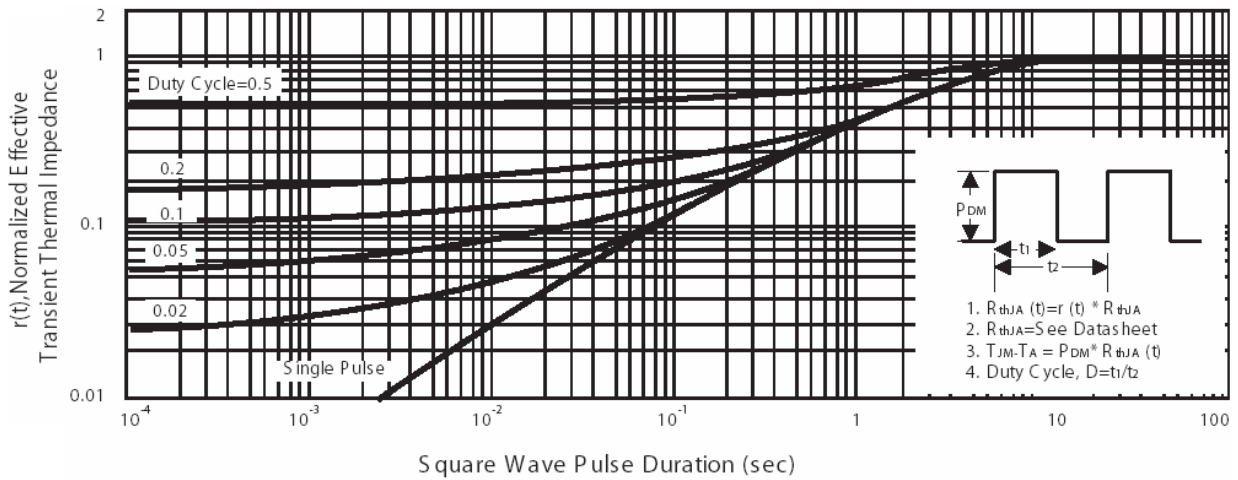


Fig 13. Normalized Thermal Transient Impedance Curve

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