

GTM CORPORATION

ISSUED DATE :2006/07/14
REVISED DATE :

GSS4953BDY

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	-30V
RDS(ON)	42mΩ
ID	-5A

Description

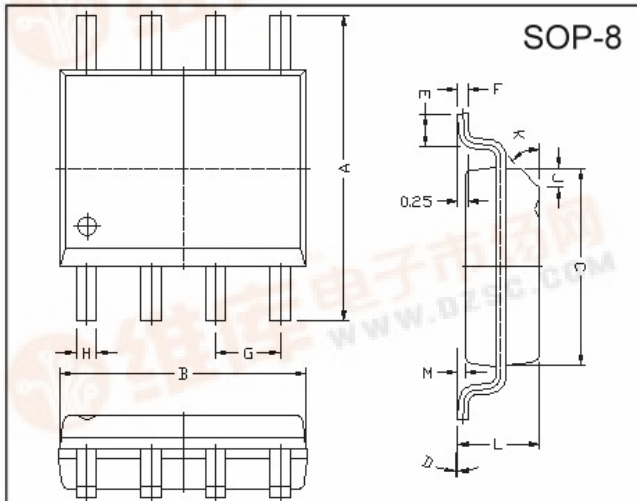
The GSS4953BDY provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

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.

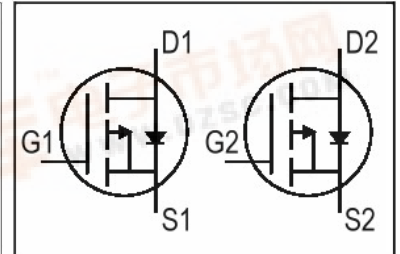
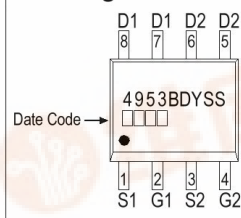
Features

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

Package Dimensions



Marking :



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}	±20	V
Continuous Drain Current ¹	$I_D @ T_A=25^\circ C$	-5	A
Continuous Drain Current ¹	$I_D @ T_A=70^\circ C$	-4	A
Pulsed Drain Current ²	I_{DM}	-20	A
Total Power Dissipation ¹	$P_D @ T_A=25^\circ C$	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 (Tj = 25°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 =-250uA
Gate Threshold Voltage	V _{GS(th)}	-1.0	-	-2.5	V	V _{DS} =V _{GS} , I _D =-250uA
Forward Transconductance ²	g _{fs}	-	5	-	S	V _{DS} =-5V, I _D =-5A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V
Drain-Source Leakage Current	I _{DSS}	-	-	-1	uA	V _{DS} =-24V, V _{GS} =0
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	42	mΩ	V _{GS} =-10V, I _D =-5A
		-	-	70		V _{GS} =-4.5V, I _D =-4A
Total Gate Charge ²	Q _g	-	11.7	-	nC	I _D =-5A V _{DS} =-15V V _{GS} =-10V
Gate-Source Charge	Q _{gs}	-	2.1	-		
Gate-Drain ("Miller") Charge	Q _{gd}	-	2.9	-		
Turn-on Delay Time ²	T _{d(on)}	-	9	-	ns	V _{DS} =-15V I _D =-1A V _{GS} =-10V R _G =6Ω R _D =15Ω
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} =0V V _{DS} =-15V f=1.0MHz
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 =-1.7A, V _{GS} =0V

Notes: 1. Surface Mounted on FR4 Board, t ≤ 10sec.

2. Pulse width ≤ 300us, duty cycle ≤ 2%.

Characteristics Curve

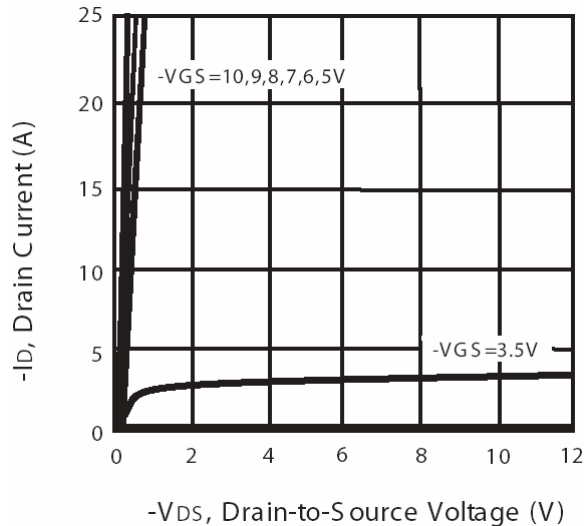


Fig 1. Typical Output Characteristics

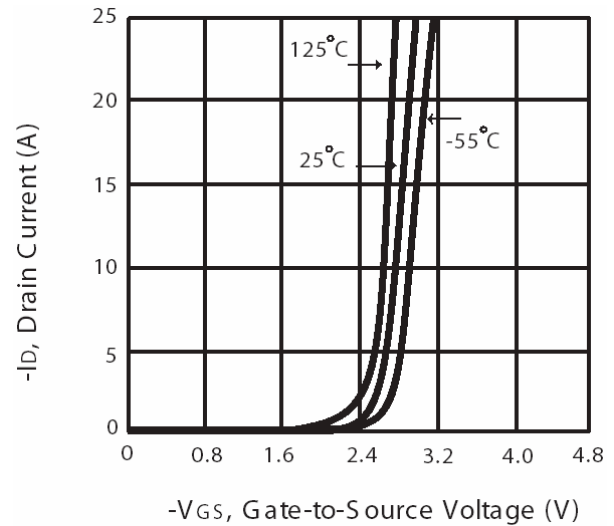


Fig 2. Transfer Characteristics

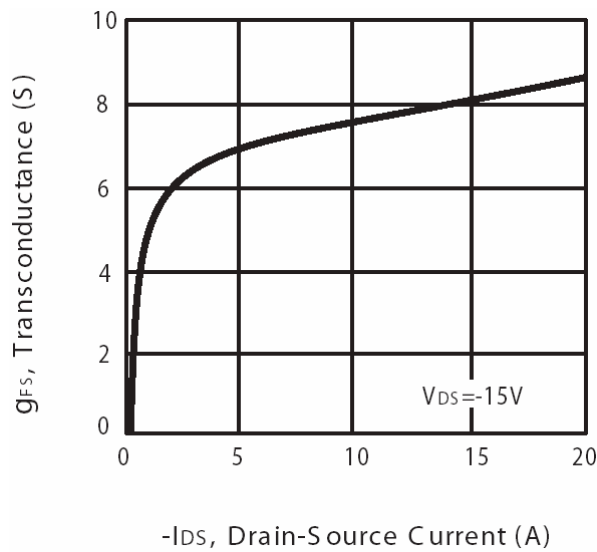


Fig 3. Transconductance v.s. Drain Current

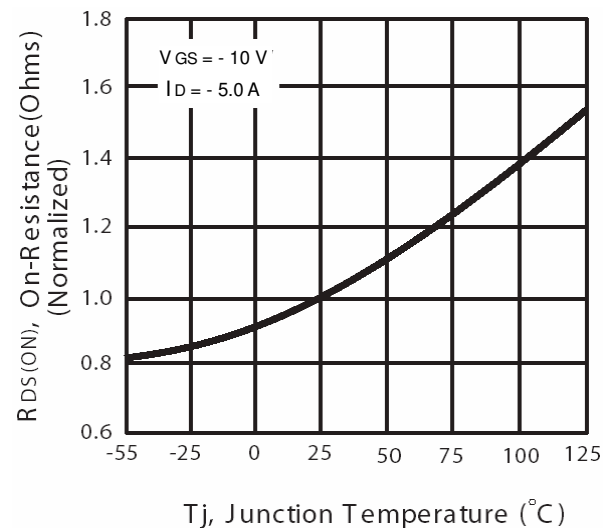


Fig 4. On-Resistance v.s. Junction Temperature

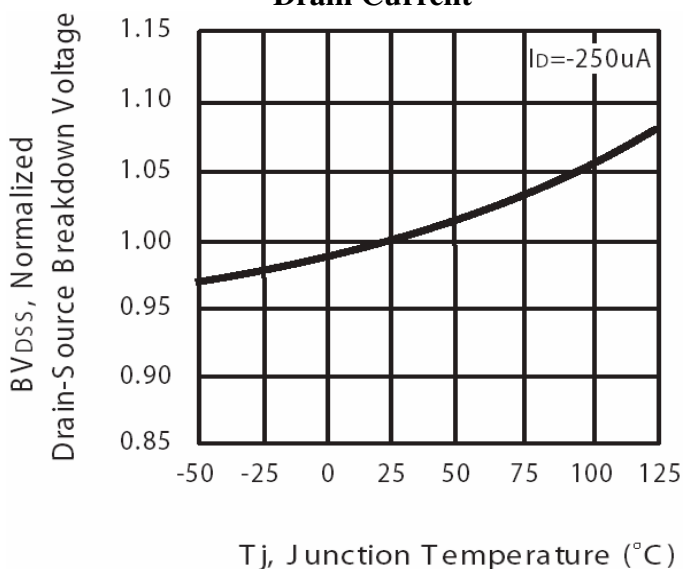


Fig 5. Breakdown Voltage v.s. Junction Temperature

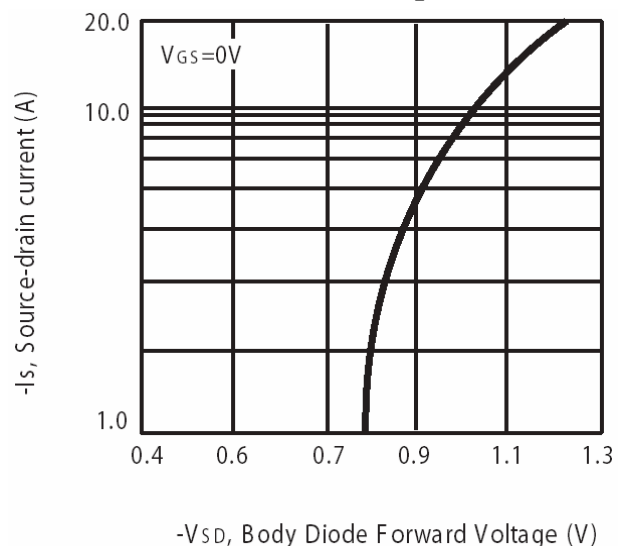


Fig 6. Body Diode Forward Voltage v.s. Source Current

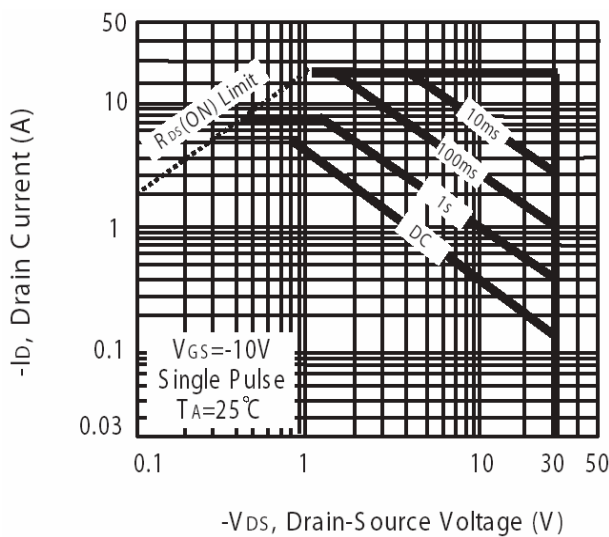


Fig 7. Maximum Safe Operating Area

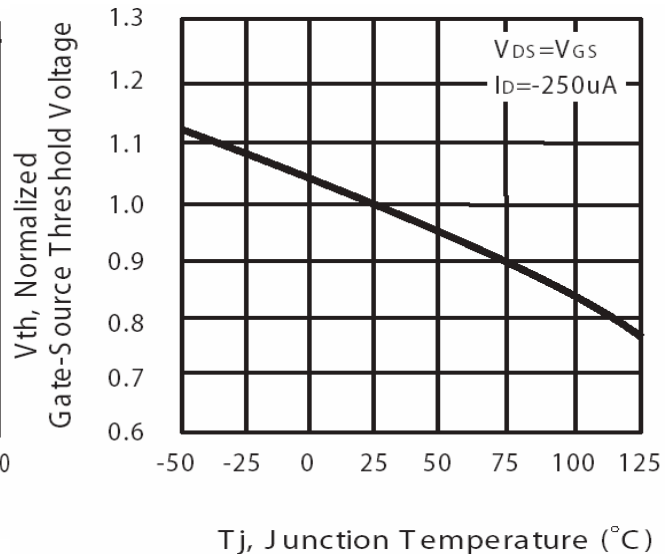


Fig 8. Gate Threshold Voltage v.s. Junction Temperature

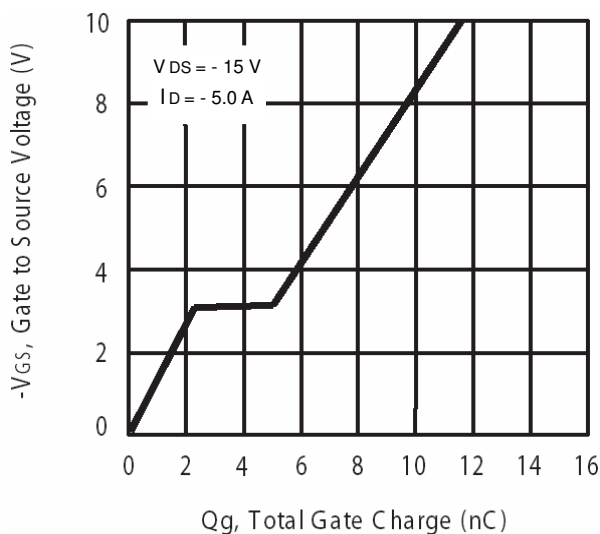


Fig 9. Gate Charge Characteristics

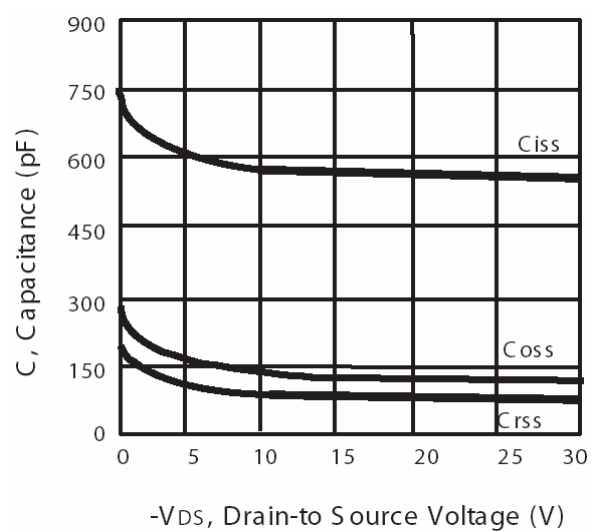


Fig 10. Typical Capacitance Characteristics

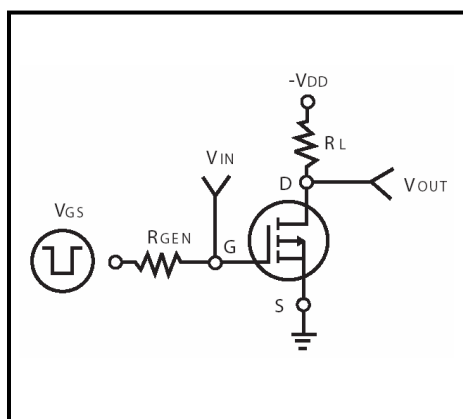


Fig 11. Switching Time Circuit

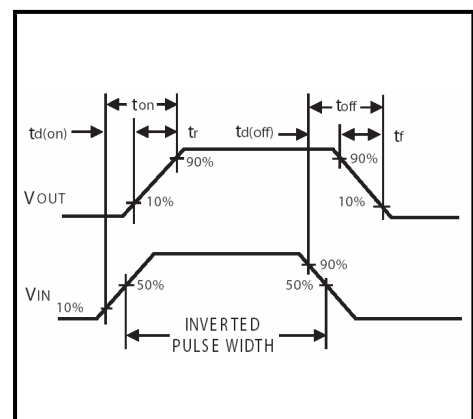


Fig 12. Switching Time Waveform

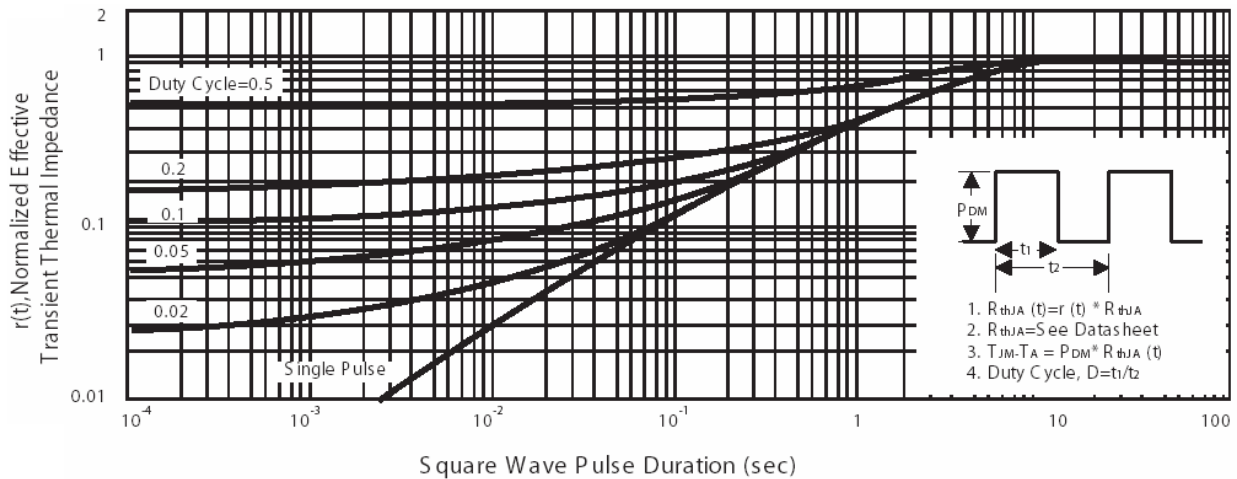


Fig 13. Normalized Thermal Transient Impedance Curve

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