

GSC9435M

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	-30V
RDS(ON)	55mΩ
ID	-5.3A

Description

The GSC9435M 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.

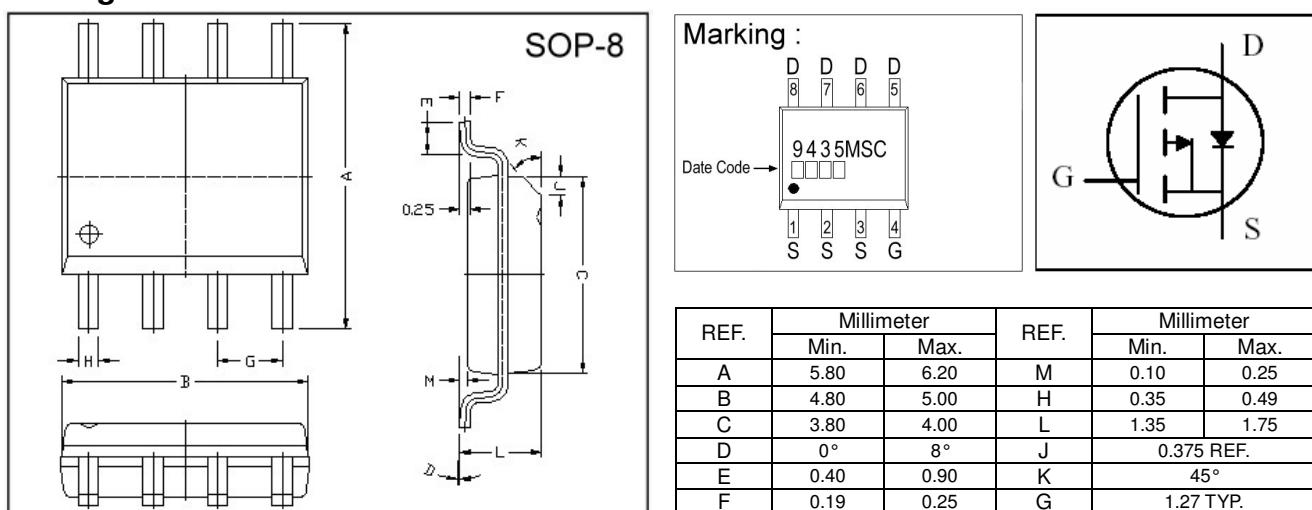
Features

- *Simple Drive Requirement

- *Lower On-resistance

- *Fast Switching

Package Dimensions



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 @TA=25°C	-5.3	A
Pulsed Drain Current ²	I _{DM}	-24	A
Total Power Dissipation ¹	P _D @TA=25°C	2.5	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	R _{thj-amb} Max.	50	°C/W

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

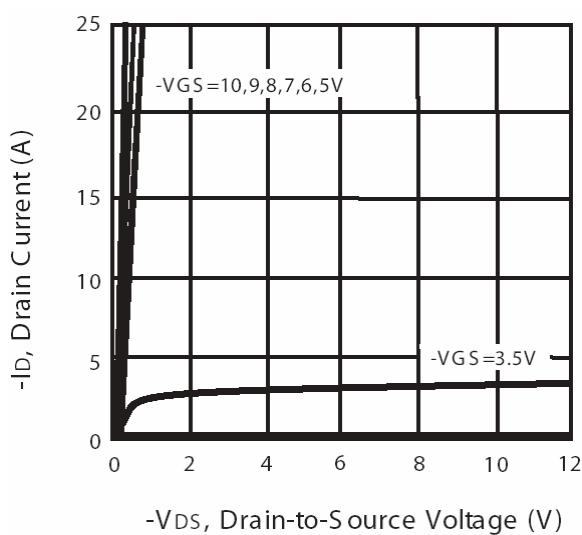
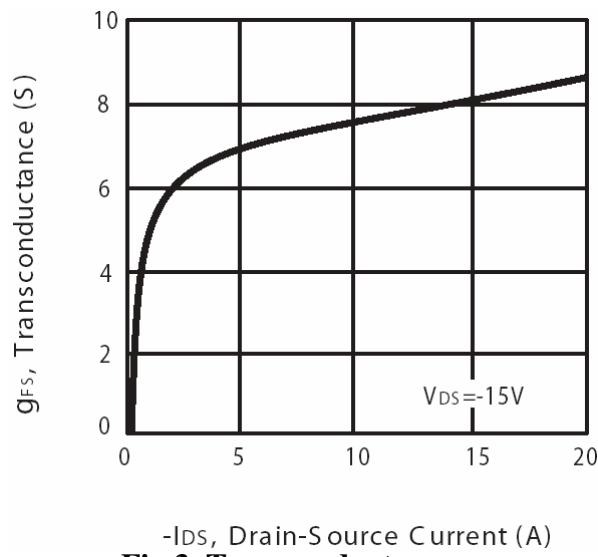
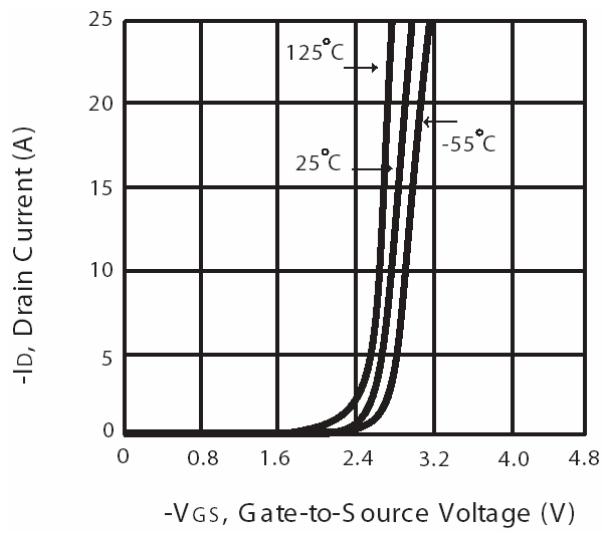
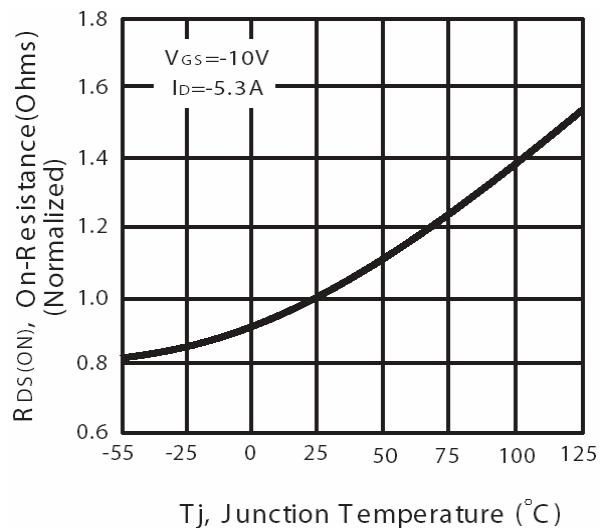
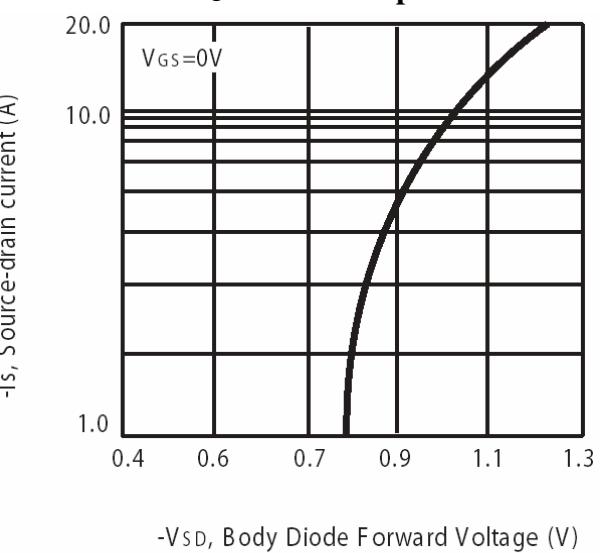
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$\text{V}_{\text{GS}}=0, \text{I}_D=-250\mu\text{A}$
Gate Threshold Voltage	$\text{V}_{\text{GS}(\text{th})}$	-1.0	-	-2.5	V	$\text{V}_{\text{DS}}=\text{V}_{\text{GS}}, \text{I}_D=-250\mu\text{A}$
Forward Transconductance ²	g_{fs}	-	5	-	S	$\text{V}_{\text{DS}}=-5\text{V}, \text{I}_D=-5.3\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$\text{V}_{\text{GS}}= \pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	$\text{V}_{\text{DS}}=-24\text{V}, \text{V}_{\text{GS}}=0$
Static Drain-Source On-Resistance ²	$\text{R}_{\text{DS}(\text{ON})}$	-	-	55	$\text{m}\Omega$	$\text{V}_{\text{GS}}=-10\text{V}, \text{I}_D=-5.3\text{A}$
		-	-	90		$\text{V}_{\text{GS}}=-4.5\text{V}, \text{I}_D=-4.2\text{A}$
Total Gate Charge ²	Q_g	-	11.7	-	nC	$\text{I}_D=-5.3\text{A}$ $\text{V}_{\text{DS}}=-15\text{V}$ $\text{V}_{\text{GS}}=-10\text{V}$
Gate-Source Charge	Q_{gs}	-	2.1	-		
Gate-Drain ("Miller") Change	Q_{gd}	-	2.9	-		
Turn-on Delay Time ²	$\text{T}_{\text{d}(\text{on})}$	-	9	-	ns	$\text{V}_{\text{DS}}=-15\text{V}$ $\text{I}_D=-1\text{A}$ $\text{V}_{\text{GS}}=-10\text{V}$ $\text{R}_G=6\Omega$ $\text{R}_D=15\Omega$
Rise Time	T_r	-	10	-		
Turn-off Delay Time	$\text{T}_{\text{d}(\text{off})}$	-	37	-		
Fall Time	T_f	-	23	-		
Input Capacitance	C_{iss}	-	582	-	pF	$\text{V}_{\text{GS}}=0\text{V}$ $\text{V}_{\text{DS}}=-15\text{V}$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	125	-		
Reverse Transfer Capacitance	C_{rss}	-	86	-		

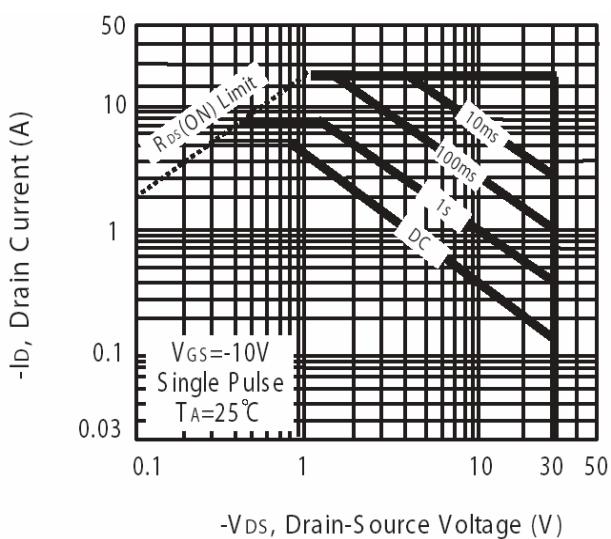
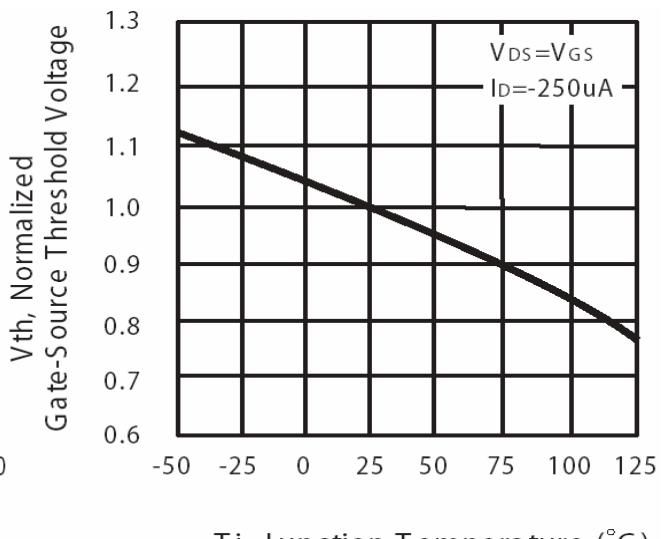
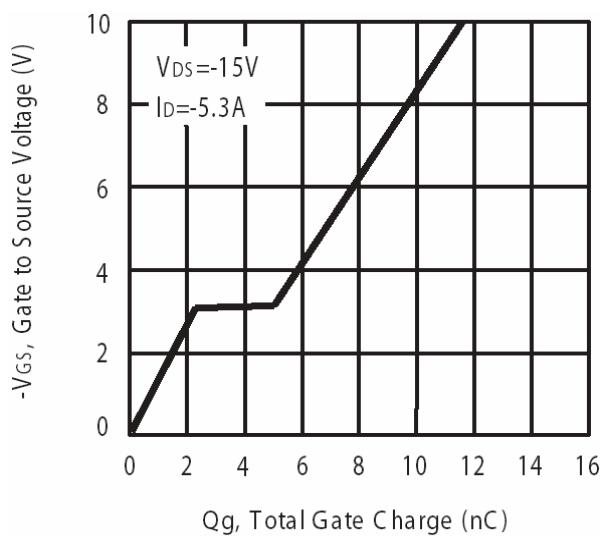
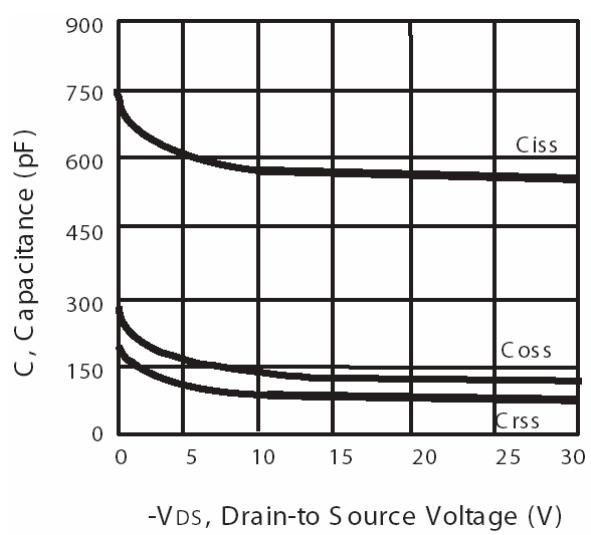
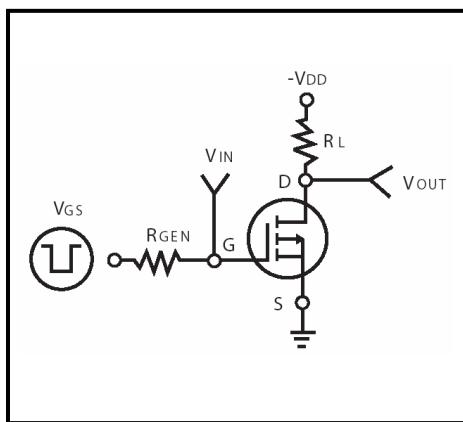
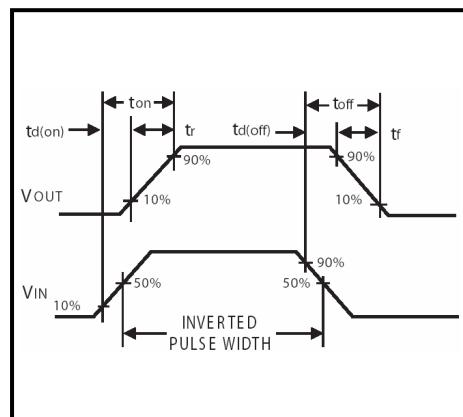
Source-Drain Diode

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

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

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

Characteristics Curve**Fig 1. Typical Output Characteristics****Fig 3. Transconductance v.s.
Drain Current****Fig 2. Transfer Characteristics****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**

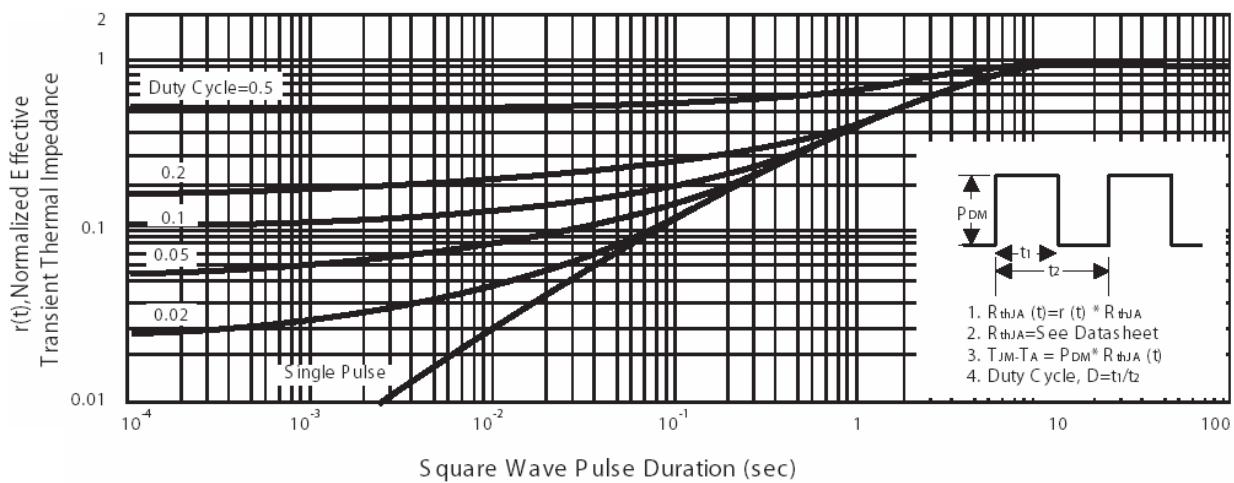


Fig 13. Normalized Thermal Transient Impedance Curve

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