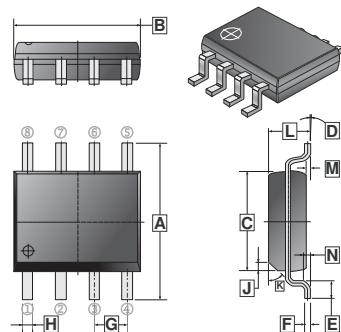


RoHS Compliant Product  
A suffix of "-C" specifies halogen free

## DESCRIPTION

The SSG9435BDY 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.

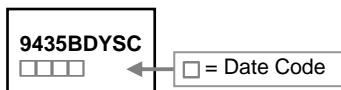
SOP-8



## FEATURES

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

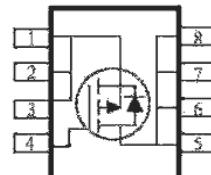
## MARKING



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

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	3K	13 inch



## MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D$	-5.3	A
$T_A = 70^\circ\text{C}$		-4.7	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	-20	A
Total Power Dissipation <sup>1</sup>	$P_D$	2.5	W
Linear Derating Factor		0.02	W / °C
Operating Junction & Storage temperature	$T_J, T_{STG}$	-55~150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-ambient <sup>1</sup> (Max.)	$R_{\theta JA}$	50	°C / W

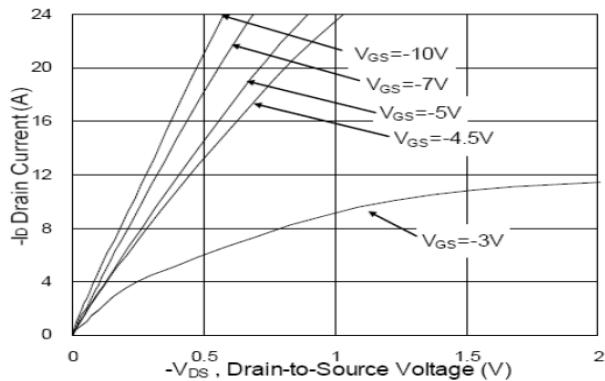
**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Static</b>						
Drain-Source Breakdown Voltage	$\text{BV}_{DSS}$	-30	-	-	V	$V_{GS}=0$ , $I_D = -250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(\text{th})}$	-1.0	-	-2.5	V	$V_{DS}=V_{GS}$ , $I_D = -250\mu\text{A}$
Forward Transconductance <sup>2</sup>	$g_{fs}$	-	5	-	S	$V_{DS} = -5\text{V}$ , $I_D = -5.3\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS} = \pm 20\text{V}$
Drain-Source Leakage Current	$I_{DSS}$	-	-	-1	$\mu\text{A}$	$V_{DS} = -30\text{V}$ , $V_{GS}=0$
Static Drain-Source On-Resistance <sup>2</sup>	$R_{DS(\text{ON})}$	-	-	36	mΩ	$V_{GS} = -10\text{V}$ , $I_D = -5.3\text{A}$
		-	-	55		$V_{GS} = -4.5\text{V}$ , $I_D = -4.2\text{A}$
Total Gate Change <sup>2</sup>	$Q_g$	-	9.8	-	nC	$I_D = -6\text{A}$ $V_{DS} = -20\text{V}$ $V_{GS} = -4.5\text{V}$
Gate-Source Charge	$Q_{gs}$	-	2.2	-		
Gate-Drain("Miller") Change	$Q_{gd}$	-	3.4	-		
Turn-On Delay Time <sup>2</sup>	$T_{d(\text{On})}$	-	16.4	-	nS	$V_{DS} = -24\text{V}$ $I_D = -1\text{A}$ $V_{GS} = -10\text{V}$ $R_G = 3.3\Omega$
Rise Time	$T_r$	-	20.2	-		
Turn-off Delay Time	$T_{d(\text{OFF})}$	-	55	-		
Fall Time	$T_f$	-	10	-		
Input Capacitance	$C_{iss}$	-	930	-	pF	$V_{GS}=0$ $V_{DS} = -15\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	148	-		
Reverse Transfer Capacitance	$C_{rss}$	-	115	-		
<b>Source -Drain Diode</b>						
Forward On Voltage <sup>2</sup>	$V_{SD}$	-	-0.84	-1.2	V	$I_S = -1.7\text{A}$ , $V_{GS}=0\text{V}$

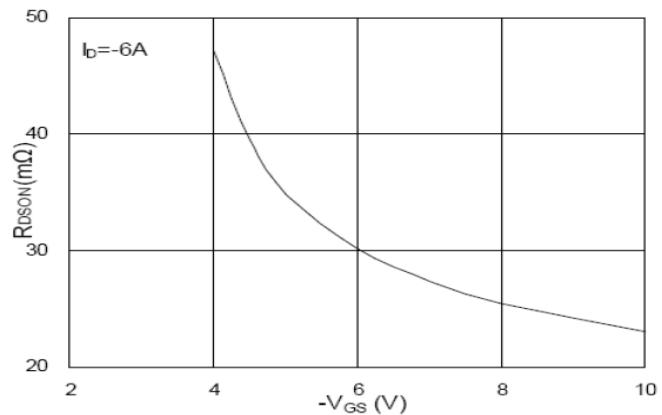
Note:

1. Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board; 125°C/W when mounted on min. copper pad.
2. Pulse width limited by Max. junction temperature.

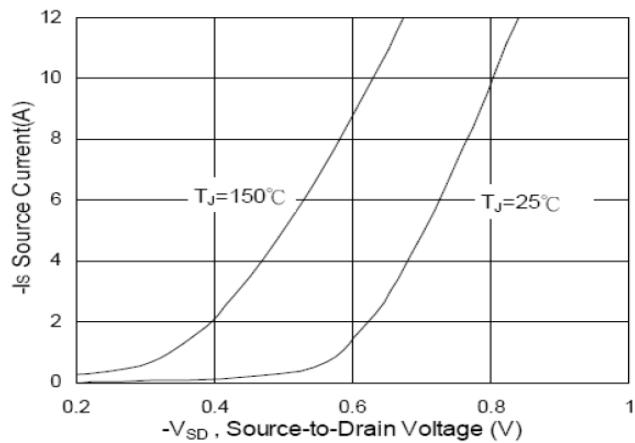
## CHARACTERISTICS CURVE



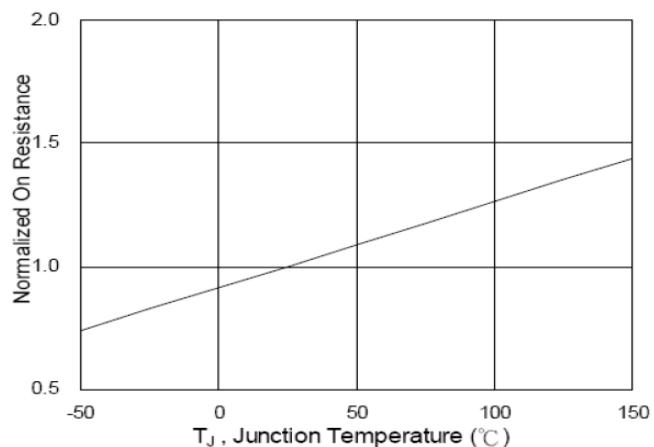
**Fig 1. Typical Output Characteristics**



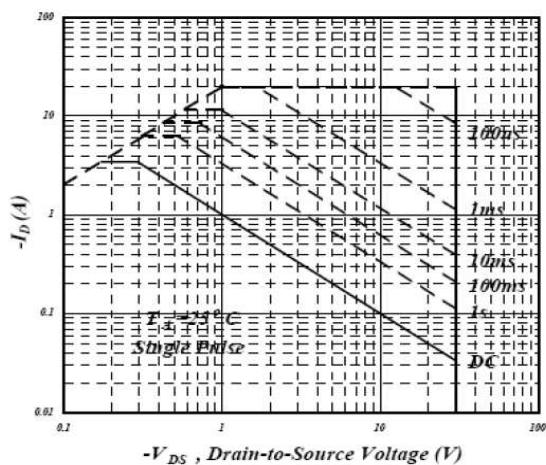
**Fig 2. On-Resistance v.s. Gate Voltage**



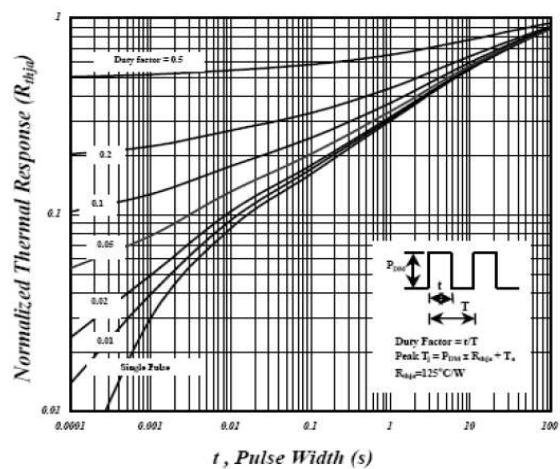
**Fig 3. Body Diode Forward Voltage v.s. Source Current**



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



**Fig 5. Maximum Safe Operating Area**



**Fig 6. Normalized Thermal Transient Impedance Curve**

## CHARACTERISTICS CURVE

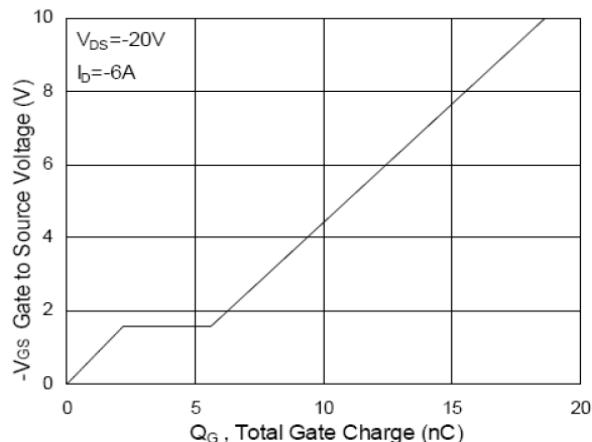


Fig 7. Gate Charge Characteristics

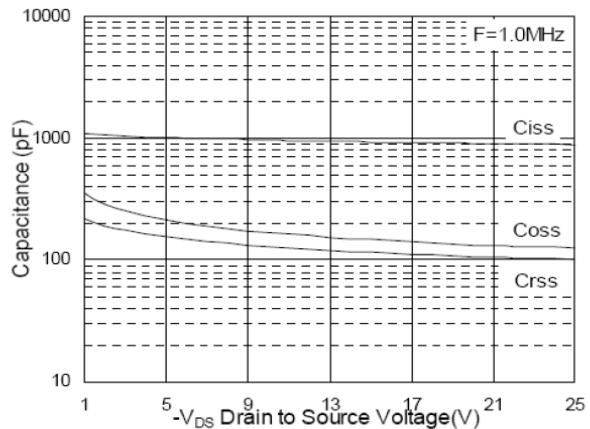


Fig 8. Typical Capacitance Characteristics

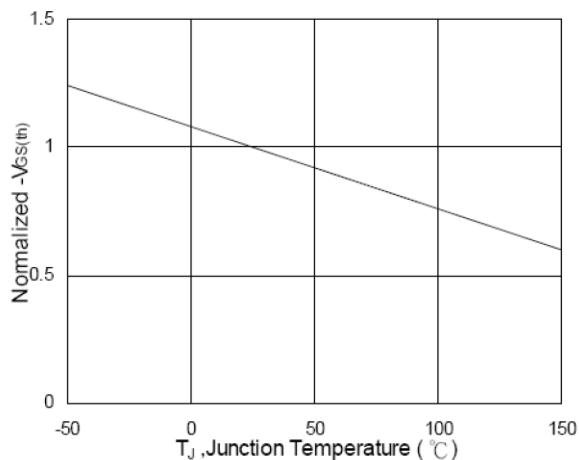


Fig 9. Gate Threshold Voltage  
v.s. Junction Temperature

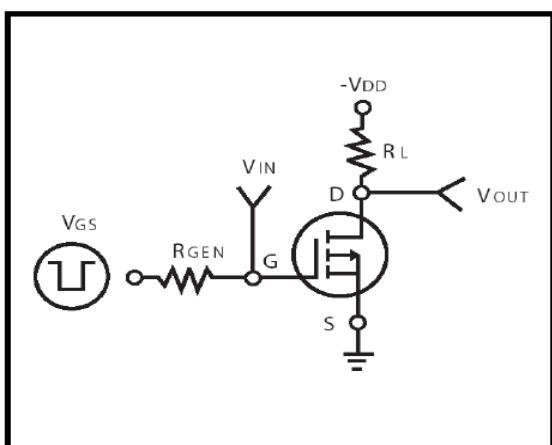


Fig 10. Switching Time Circuit

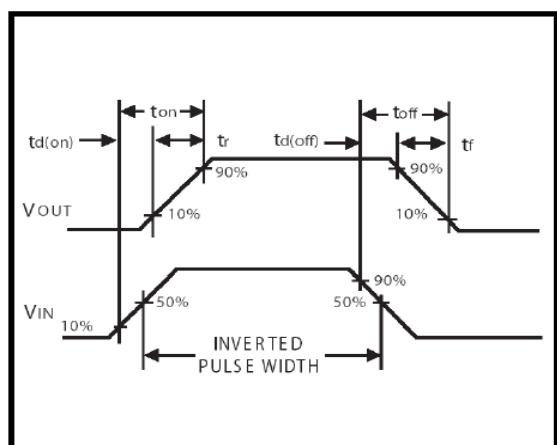


Fig 11. Switching Time Waveform