

Features

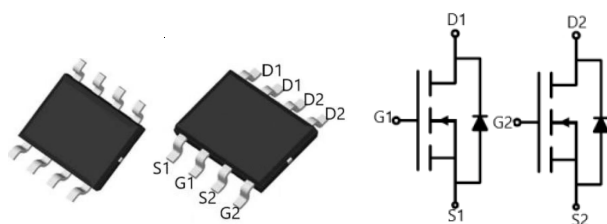
Low Gate Charge
100% UIS Tested, 100% DVDS Tested
High Power and current handing capability
Lead free product is acquired

V_{DS} 20 V
 I_D 6 A
 $R_{DS(ON)}$ 20m Ω

Applications

Load switch
PMW

9926A
GA7M7K



SOP-8 top&bottom view

Schematic Diagram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ($V_{GS}=0V$)	20	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 12	V
I_D	Drain Current-Continuous($T_A=25^\circ\text{C}$)	6	A
	Drain Current-Continuous($T_A=100^\circ\text{C}$)	3.8	A
I_{DM} (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	24	A
P_D	Maximum Power Dissipation($T_A=25^\circ\text{C}$)	0.9	W
	Maximum Power Dissipation($T_A=100^\circ\text{C}$)	0.3	W
E_{AS}	Avalanche energy (Note 2)	256	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V T _J =25℃			1	μA
		V _{DS} =20V, V _{GS} =0V T _J =125℃			100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _b =250μA	0.5		1	V
g _{FS}	Forward Transconductance	V _{DS} =5V, I _b =1.5A		6.5		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =3A T _J =25℃		20	25	mΩ
		V _{GS} =2.5V, I _D =3A T _J =25℃		27	32	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V,V _{GS} =0V, f=1.0MHz		568		pF
C _{oss}	Output Capacitance			68		pF
C _{rss}	Reverse Transfer Capacitance			60		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1.0MHz		9		Ω
Switching Parameters						
t _{d(on)}	Turn-on Delay Time	V _{GS} =4.5V, V _{DS} =10V, R _L =6.7Ω, R _{GEN} =3Ω		14		nS
t _r	Turn-on Rise Time			8		nS
t _{d(off)}	Turn-Off Delay Time			44		nS
t _f	Turn-Off Fall Time			15		nS
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =10V, I _D =1.5A		55		nC
Q _{gs}	Gate-Source Charge			8.7		nC
Q _{gd}	Gate-Drain Charge			13.5		nC
Source-Drain Diode Characteristics						
I _{SD}	Source-Drain Current (Body Diode)				6	A
V _{SD}	Forward on Voltage (Note 3)	V _{GS} =0V, I _s =1.5A			1.2	V
t _{rr}	Reverse Recovery Time	I _f =1.5A, dI/dt=500A/μs		44		ns
Q _{rr}	Reverse Recovery Charge	I _f =1.5A, dI/dt=500A/μs		49		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2.E_{AS} condition: T_J=25°C, V_{DD}=20V, V_G=10V, R_g=25Ω, L=0.5mH.

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
R _{θJA}	Thermal Resistance, Junction-to-Ambient		144	°C/W

RATING AND CHARACTERISTIC CURVES

Figure 1. Output Characteristics

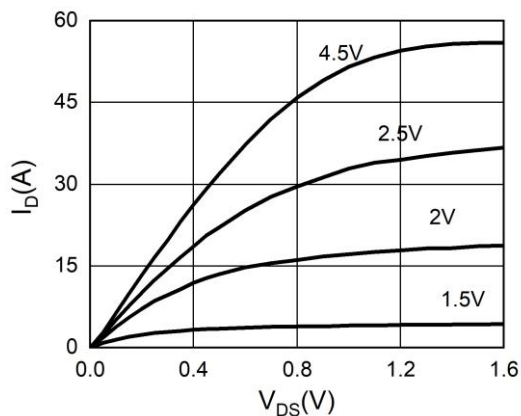


Figure 2. Transfer Characteristics

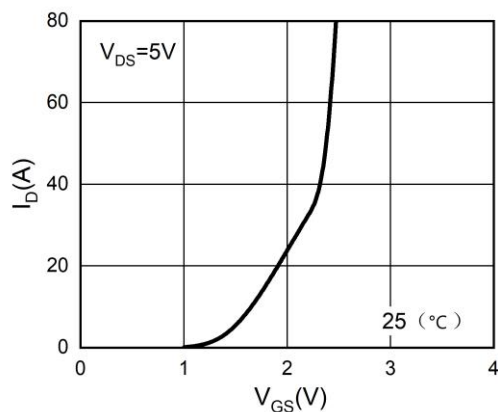


Figure 3. Power Dissipation

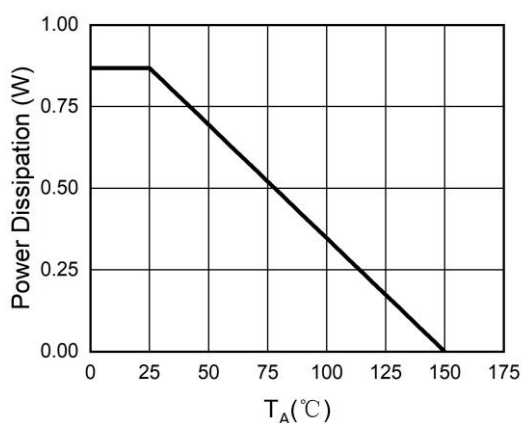


Figure 4. Drain Current

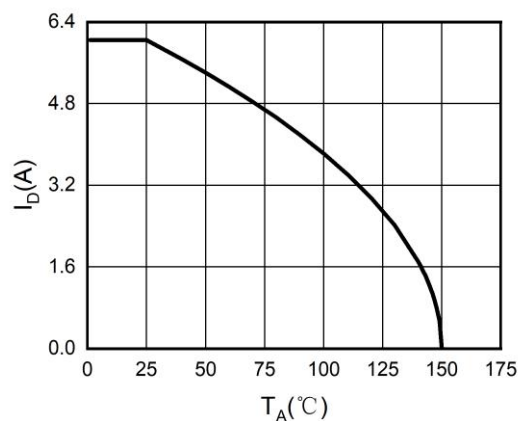


Figure 5. BV_{DSS} vs Junction Temperature

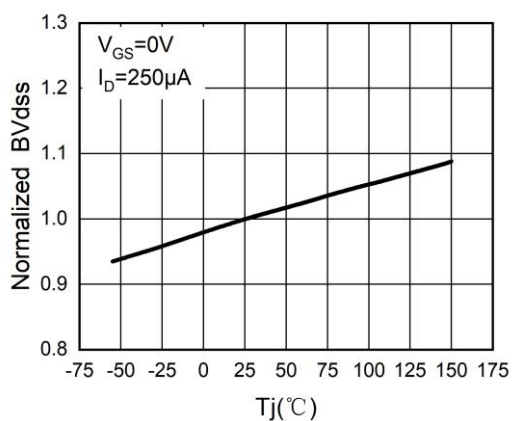
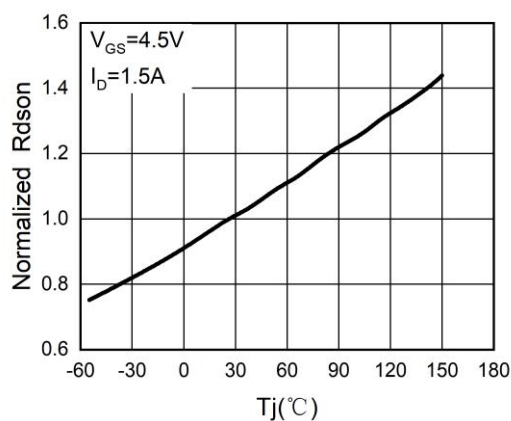
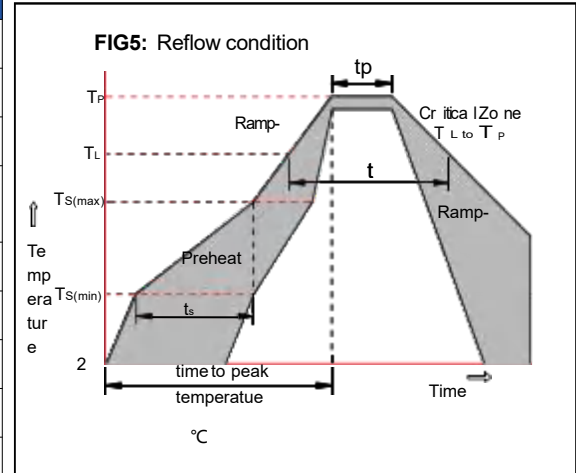


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



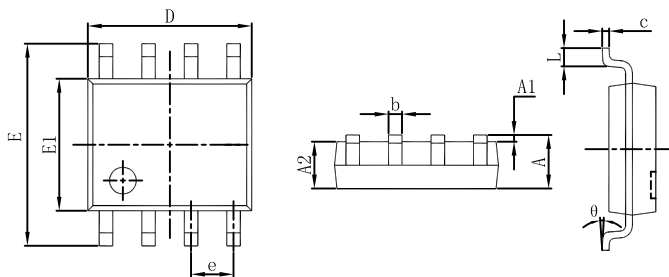
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C

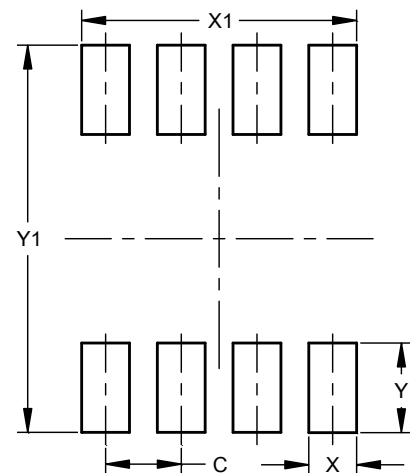


Package Dimensions & Suggested Pad Layout

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Dimensions	Value (in mm)
C	1.27
X	0.70
X1	4.51
Y	2.00
Y1	7.00

