

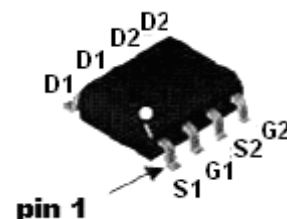
Dual N-CHANNEL ENHANCEMENT MODE POWER MOSFET

Features:

- $R_{DS(ON)}=28m\Omega @V_{GS}=4.5V, I_D=6A$
- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Capable of 2.5V gate drive
- Pb-free lead plating package

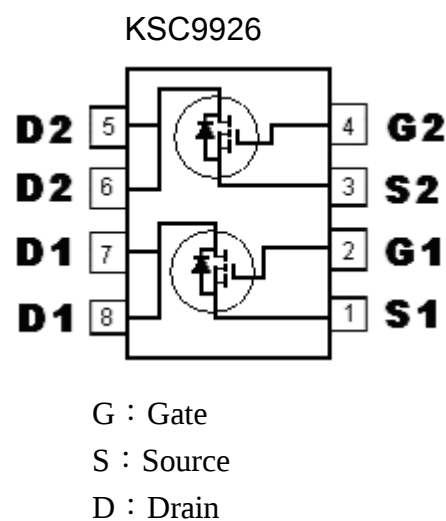
Outline

SOP-8



Equivalent Circuit

BV_{DSS}	20V
I_D	6A
$R_{DS(ON)(MAX)}$	28m Ω



Ordering Information

Device	Package	Shipping
KSC9926	SOP-8 (Pb-free lead plating and halogen-free package)	2500 pcs / tape & reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current @ V _{GS} =4.5V, T _A =25 °C (Note 1)	I _D	6	A
Continuous Drain Current @ V _{GS} =4.5V, T _A =70 °C (Note 1)	I _D	4.8	A
Pulsed Drain Current (Note 2&3)	I _{DM}	20	A
Total Power Dissipation @ T _A =25 °C	P _d	2	W
Linear Derating Factor		0.016	W / °C
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55~+150	°C
Thermal Resistance, Junction-to-Ambient (Note 1)	R _{th,ja}	62.5	°C/W

Note : 1. Surface mounted on 1 in² copper pad of FR-4 board; 135°C/W when mounted on minimum copper pad

2. Pulse width limited by maximum junction temperature.

3. Pulse width≤300μs, duty cycle≤2%

Characteristics (T_j=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	20	-	-	V	V _{GS} =0, I _D =250μA
ΔBV _{DSS} /ΔT _j	-	0.03	-	V/°C	Reference to 25°C, I _D =1mA
V _{GS(th)}	0.5	-	1.2	V	V _{DS} = V _{GS} , I _D =250μA
G _{FS}	-	20	-	S	V _{DS} =10V, I _b =6A
I _{GSS}	-	-	±100	nA	V _{GS} =±12V, V _{DS} =0
I _{DSS}	-	-	1	μA	V _{DS} =20V, V _{GS} =0
	-	-	25	μA	V _{DS} =16V, V _{GS} =0, T _j =70°C
*R _{DS(ON)}	-	-	28	mΩ	I _D =6A, V _{GS} =4.5V
	-	-	38		I _D =5.2A, V _{GS} =2.5V
Dynamic					
*Q _g	-	23	-	nC	V _{DS} =20V, I _b =6A, V _{GS} =5V
*Q _{gs}	-	4.5	-		
*Q _{gd}	-	7	-		
*t _{d(ON)}	-	30	-	ns	V _{DS} =10V, I _b =1A, V _{GS} =5V, R _G =6Ω , R _D =10Ω
*t _r	-	70	-		
*t _{d(OFF)}	-	40	-		
*t _f	-	65	-		
C _{iss}	-	1035	-	pF	V _{DS} =20V, V _{GS} =0, f=1MHz
C _{oss}	-	320	-		
C _{rss}	-	150	-		
Source-Drain Diode					
*V _{SD}	-	-	1.2	V	I _s =1.7A, V _{GS} =0V
*I _S	-	-	1.54	A	V _D =V _G =0V, V _S =1.3V

*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

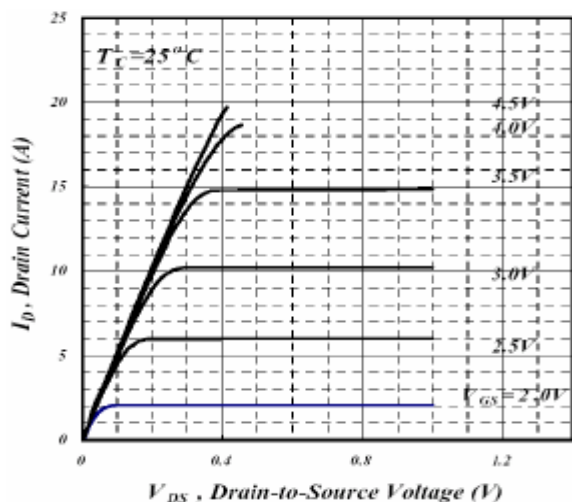


Fig 1. Typical Output Characteristics

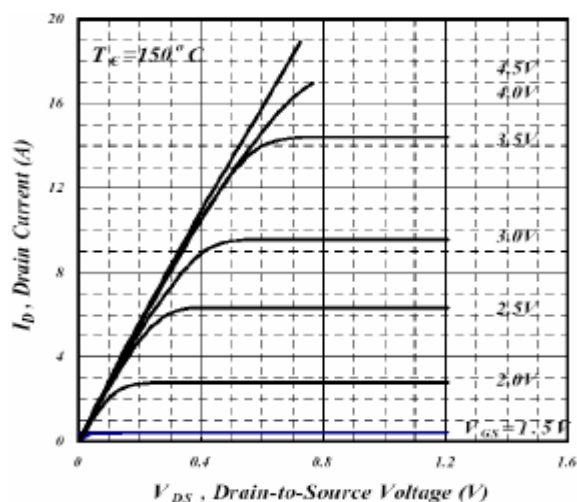


Fig 2. Typical Output Characteristics

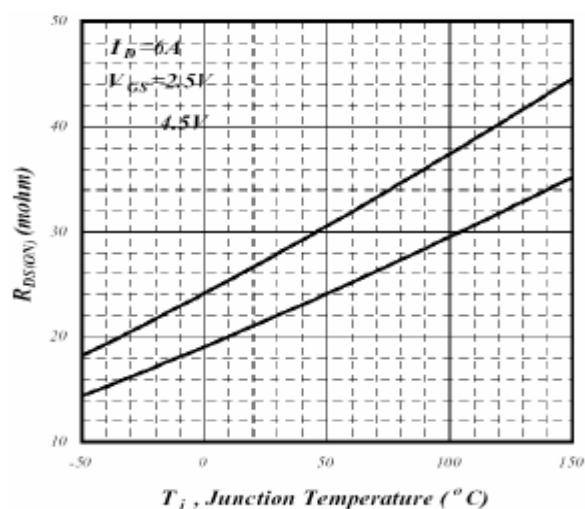


Fig 3. $R_{DS(on)}$ v.s. Junction Temperature

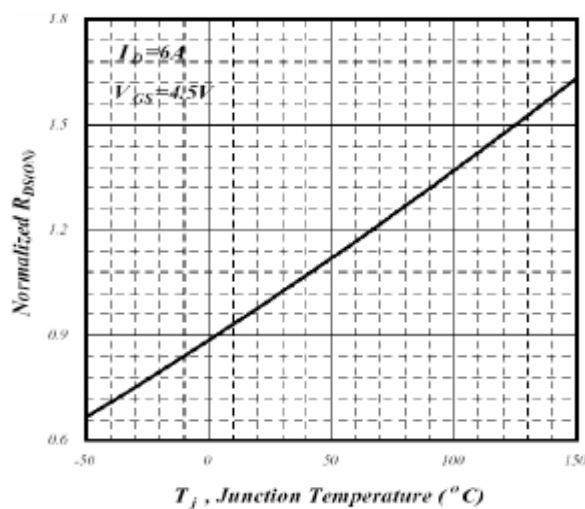


Fig 4. Normalized On-Resistance v.s. Junction Temperature

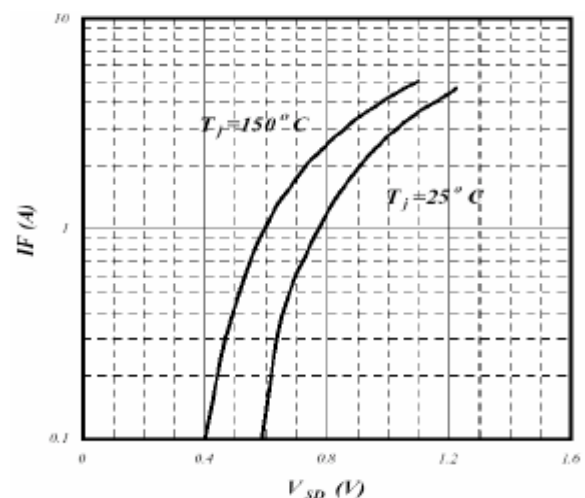


Fig 5. Forward Characteristics of Reverse Diode

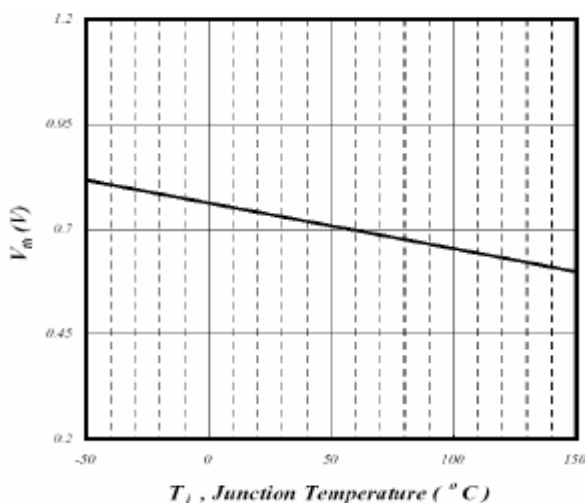


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

Typical Characteristics(Cont.)

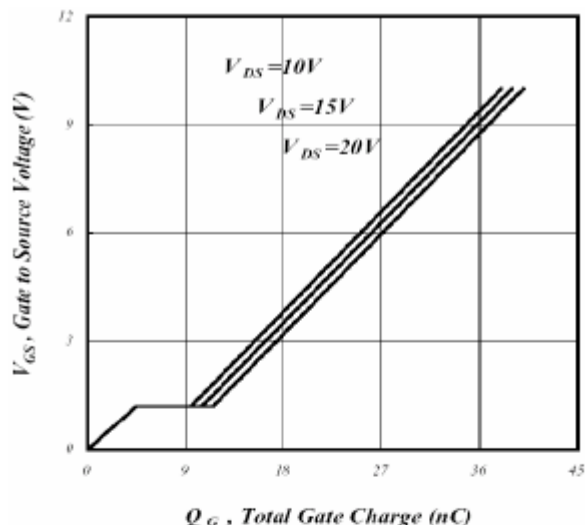


Fig 7. Gate Charge Characteristics

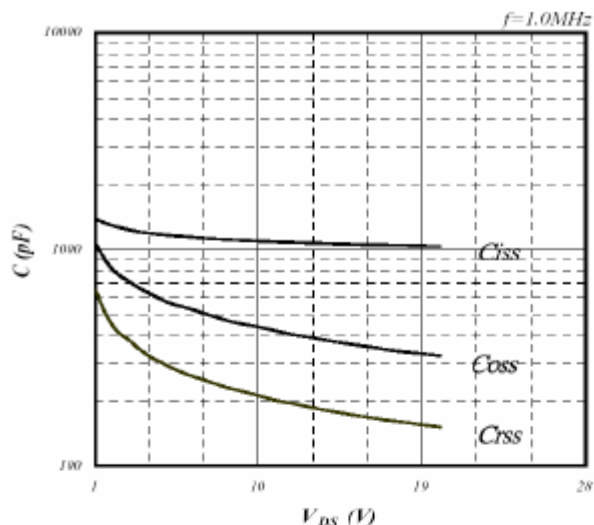


Fig 8. Typical Capacitance Characteristics

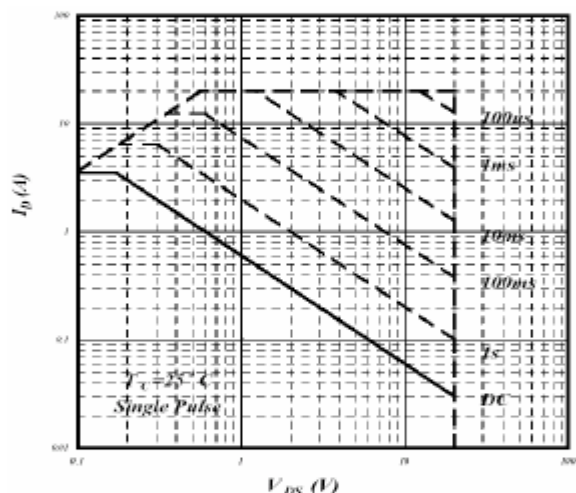


Fig 9. Maximum Safe Operating Area

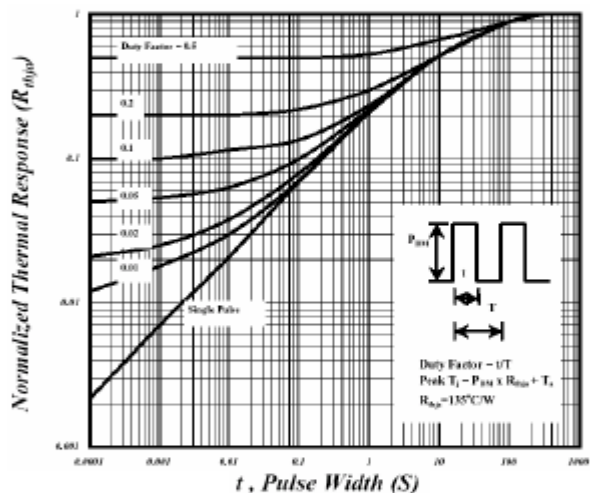


Fig 10. Effective Transient Thermal Impedance

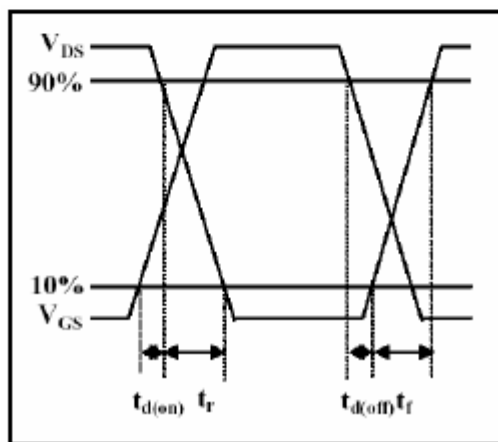


Fig 11. Switching Time Waveform

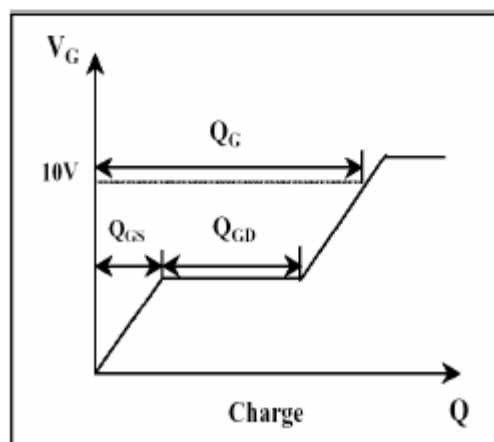
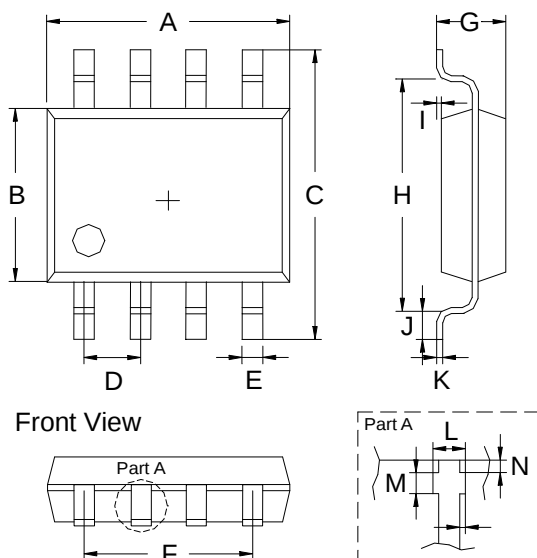
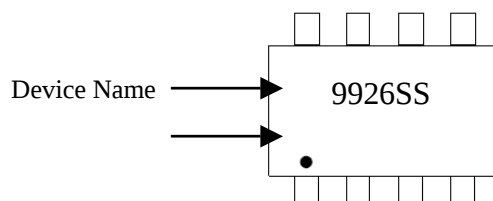


Fig 12. Gate Charge Waveform

SOP-8 Dimension



Marking:



8-Lead SOP-8 Plastic Package
 Code: Q8

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1890	0.2007	4.80	5.10	I	0.0098	REF	0.25	REF
B	0.1496	0.1654	3.80	4.20	J	0.0118	0.0354	0.30	0.90
C	0.2283	0.2441	5.80	6.20	K	0.0074	0.0098	0.19	0.25
D	0.0480	0.0519	1.22	1.32	L	0.0145	0.0204	0.37	0.52
E	0.0138	0.0193	0.35	0.49	M	0.0118	0.0197	0.30	0.50
F	0.1472	0.1527	3.74	3.88	N	0.0031	0.0051	0.08	0.13
G	0.0531	0.0689	1.35	1.75	O	0.0000	0.0059	0.00	0.15
H	0.1889	0.2007	4.80	5.10					