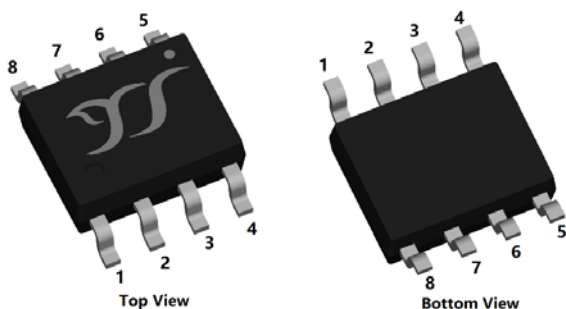
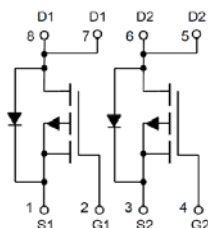


P-Channel and P-Channel Complementary MOSFET



SOP-8



Product Summary

• V_{DS}	-100V
• I_D	-3A
• $R_{DS(ON)}$ (at $V_{GS}=-10V$)	110m Ω
• $R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	120m Ω

General Description

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- Moisture Sensitivity Level 3
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

■ Absolute Maximum Ratings ($T_A=25$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	-100	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25^\circ\text{C}$	I_D	-3	A
	$T_A=100^\circ\text{C}$		-1.9	
Pulsed Drain Current ^A		I_{DM}	-25	A
Total Power Dissipation ^C	$T_A=25^\circ\text{C}$	P_D	1.3	W
	$T_A=100^\circ\text{C}$		0.5	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 +150	$^\circ\text{C}$

■ Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^C	Steady-State	$R_{\theta JA}$	75	90	$^\circ\text{C/W}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJSD03GP10A	F2	QD03GP10A	4000	8000	64000	13" reel



YJSD03GP10A

■ Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =-250μA	-100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-100V, V _{GS} =0V	-	-	-1	μA
		V _{DS} =-100V, V _{GS} =0V, T _J =150°C	-	-	-100	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-3A	-	85	110	mΩ
		V _{GS} =-4.5V, I _D =-2A	-	95	120	
Diode Forward Voltage	V _{SD}	I _S =-3A, V _{GS} =0V	-	-0.9	-1.2	V
Gate resistance	R _G	f=1MHz, Open drain	-	9	-	Ω
Maximum Body-Diode Continuous Current	I _S		-	-	-3	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =0V, f=1MHz	-	1050	-	pF
Output Capacitance	C _{oss}		-	110	-	
Reverse Transfer Capacitance	C _{rss}		-	10	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-50V, I _D =-3A	-	20	-	nC
Gate-Source Charge	Q _{gs}		-	3.9	-	
Gate-Drain Charge	Q _{gd}		-	4.3	-	
Reverse Recovery Charge	Q _{rr}	I _F =-3A, di/dt=100A/us	-	140	-	nC
Reverse Recovery Time	t _{rr}		-	70	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DD} =-50V, I _D =-3A R _{GEN} =2.2Ω	-	10	-	ns
Turn-on Rise Time	t _r		-	30	-	
Turn-off Delay Time	t _{D(off)}		-	77	-	
Turn-off fall Time	t _f		-	81	-	

A. Repetitive rating; pulse width limited by max. junction temperature.

B. P_d is based on max. junction temperature, using junction-case thermal resistance.

C. The value of R_{θJA} is measured with the device mounted on the minimum recommend pad size, in the still air environment with T_A =25°C. The maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.



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Typical Electrical and Thermal Characteristics Diagrams

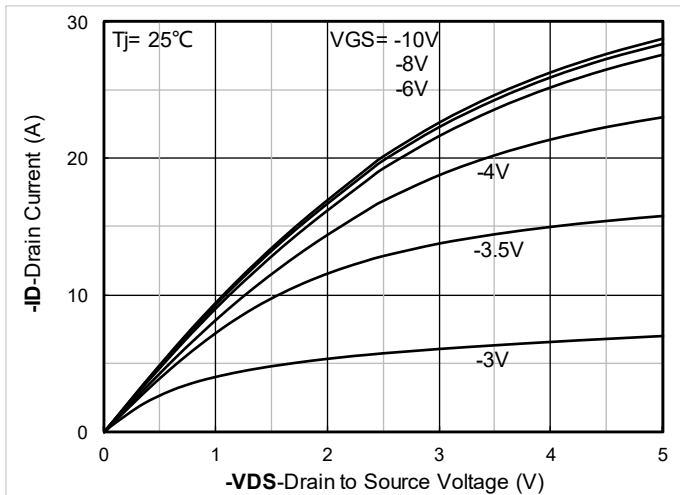


Figure 1. Output Characteristics

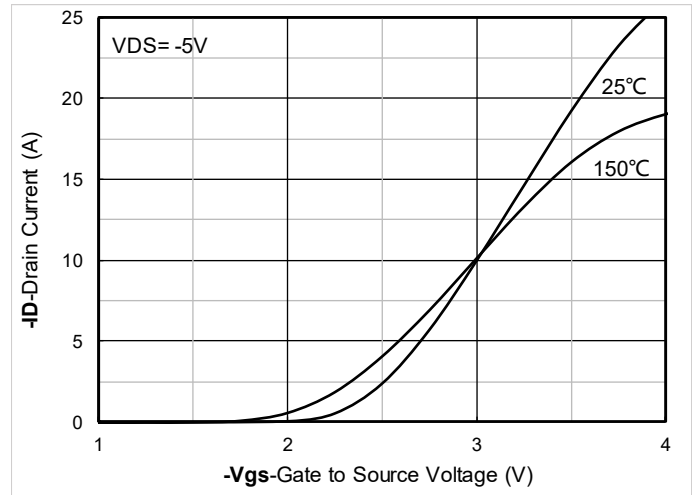


Figure 2. Transfer Characteristics

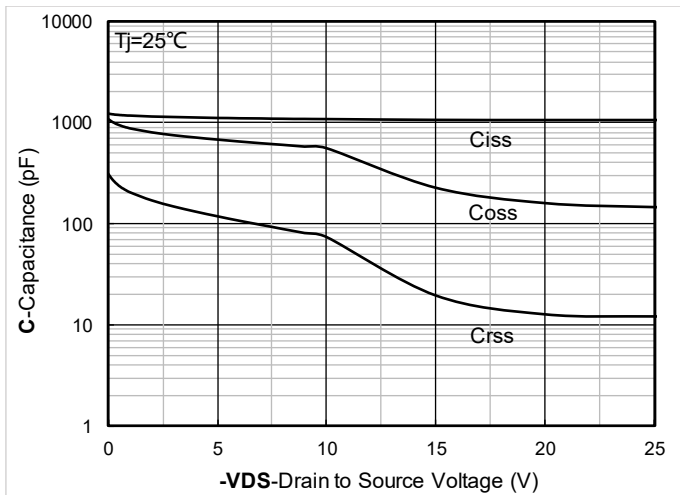


Figure 3. Capacitance Characteristics

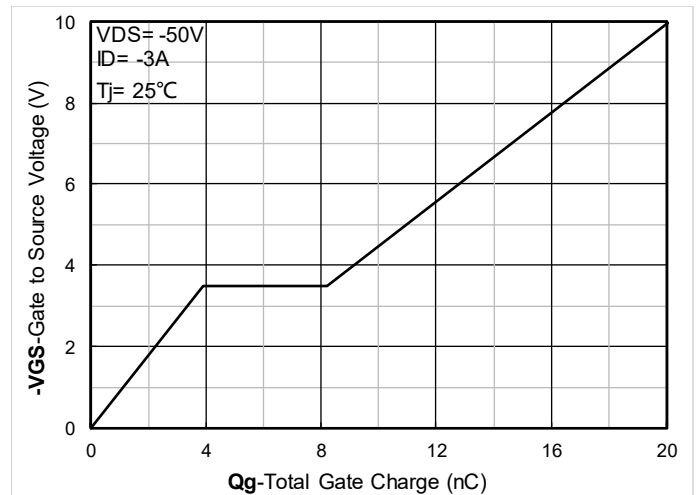


Figure 4. Gate Charge

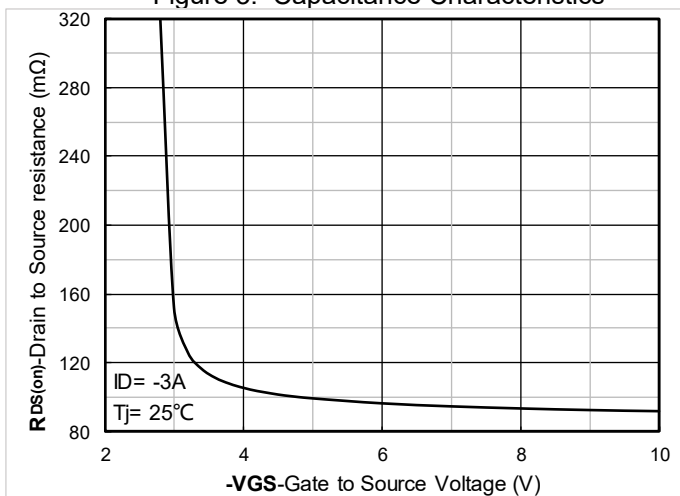


Figure 5. On-Resistance vs Gate to Source Voltage

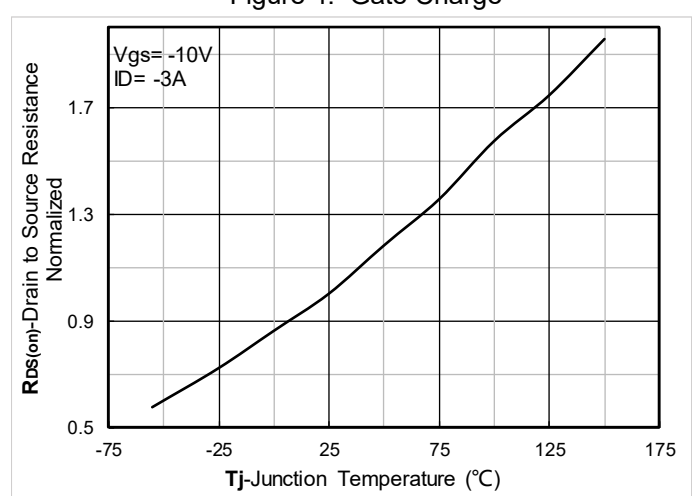
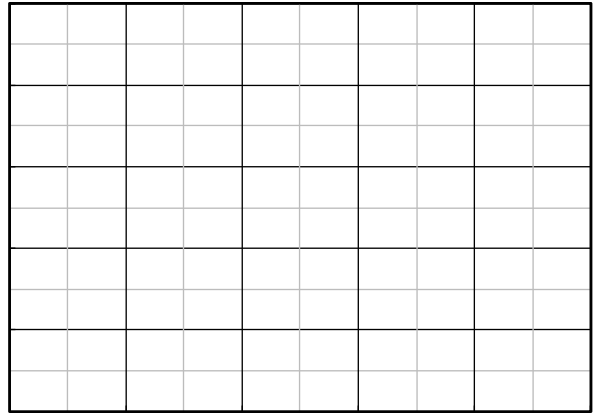
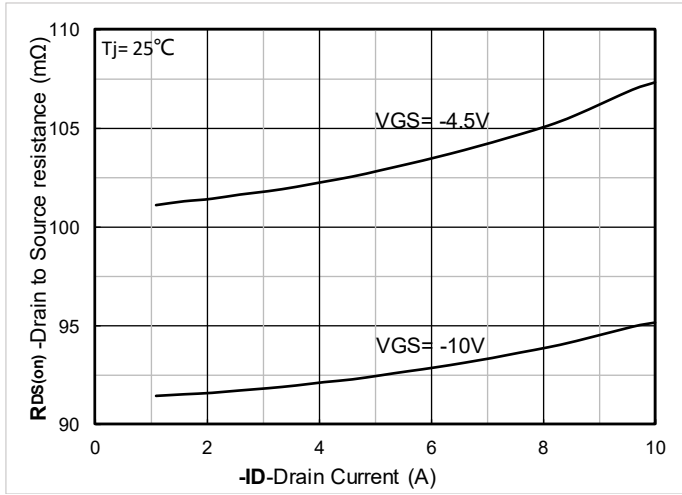


Figure 6. Normalized On-Resistance



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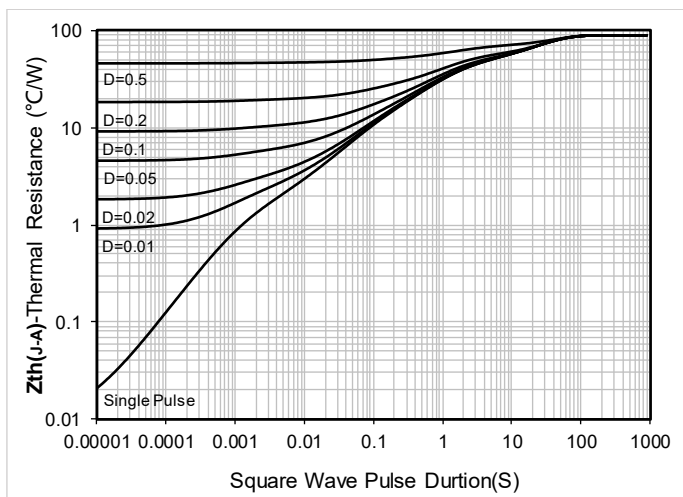


Figure 13. Maximum Transient Thermal Impedance

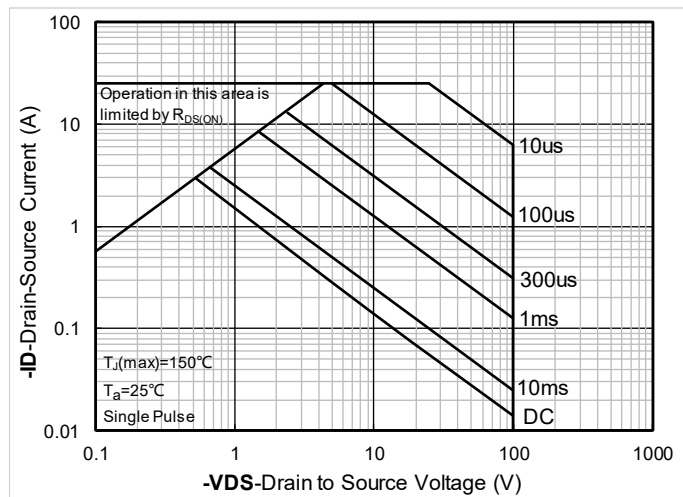
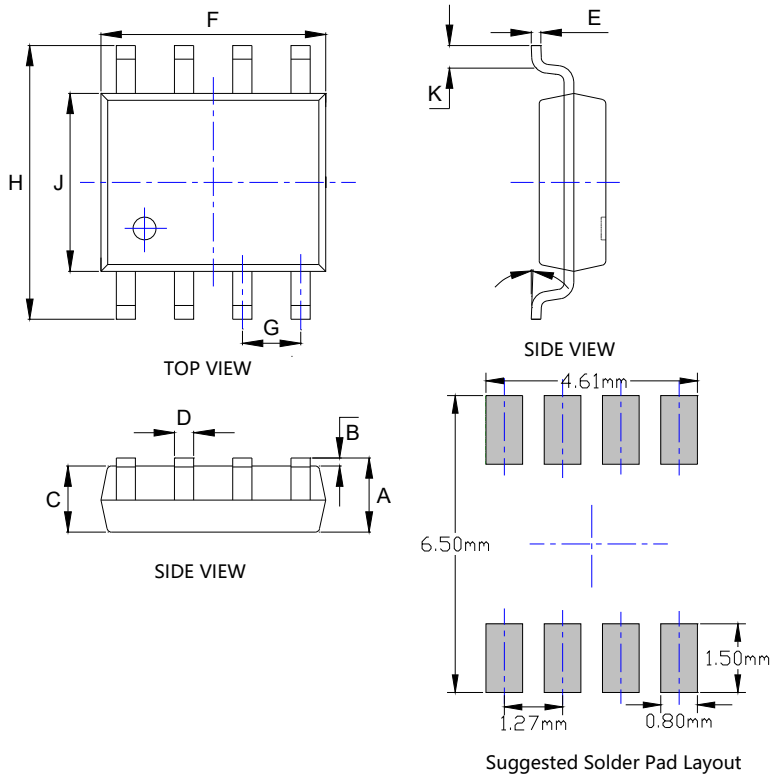


Figure 14. Safe Operation Area



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■ SOP-8 Package information



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.053	0.069	1.350	1.750
B	0.004	0.010	0.100	0.250
C	0.053	0.061	1.350	1.550
D	0.013	0.020	0.330	0.510
E	0.007	0.010	0.170	0.250
F	0.189	0.197	4.800	5.000
G	0.050BSC		1.270BSC	
H	0.228	0.244	5.800	6.200
J	0.150	0.157	3.800	4.000
K	0.016	0.050	0.400	1.270
	0°	8°	0°	8°

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.



YJSD03GP10A

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