



P-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	-30V
I_D	-4.1A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	47m
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	65m

General Description

Low $R_{DS(on)}$ & FOM
Extremely low switching loss
Moisture Sensitivity Level 1
Epoxy Meets UL 94 V-0 Flammability Rating
Halogen Free
Part no. with suffix "Q" means AEC-Q101 qualified

Applications

Power management
Portable equipment

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

Parameter	Symbol	Limit	Unit	
Drain-source Voltage	V_{DS}	-30	V	
Gate-source Voltage	V_{GS}	± 20	V	
Drain Current	I_D	$T_A=25$	-4.1	A
		$T_A=100$	-2.5	
Pulsed Drain Current ^A	I_{DM}	-20	A	
Total Power Dissipation ^B	P_D	$T_A=25$	1.2	W
		$T_A=100$		



YJL3407CQ

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	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	uA
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	-1.5	-2.4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-4.1A		35	47	m
		V _{GS} =-4.5V, I _D =-3.5A		50	65	m
Diode Forward Voltage	V _{SD}	I _S =-4.1A, V _{GS} =0V			-1.2	V
Gate resistance	R _G	f=1MHz		17.5		
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz		471		pF
Output Capacitance	C _{oss}			84		
Reverse Transfer Capacitance	C _{rss}			69		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-15V, I _D =-4.1A	-	9	-	nC
Gate-Source Charge	Q _{gs}		-	1.5	-	
Gate-Drain Charge	Q _{gd}		-	2.3	-	
Reverse Recovery Charge	Q _{rr}	I _F =-4.1A, di/dt=100A/us	-	12	-	nC
Reverse Recovery Time	t _{rr}		-	32	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DD} =-15V, I _D =-4.1A R _{GEN} =2.5	-	9	-	ns
Turn-on Rise Time	t _r			3		
Turn-off Delay Time	t _{D(off)}			29		
Turn-off fall Time	t _f			15		

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

B. P_q is based on max. junction temperature, using junction-ambient thermal resistance.

C. The value of R_{JA} is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in the still air environment with T_A =25 . The maximum allowed junction temperature of 150 . The value in any given application depends on the user's specific board design.



Typical Electrical and Thermal Characteristics Diagrams

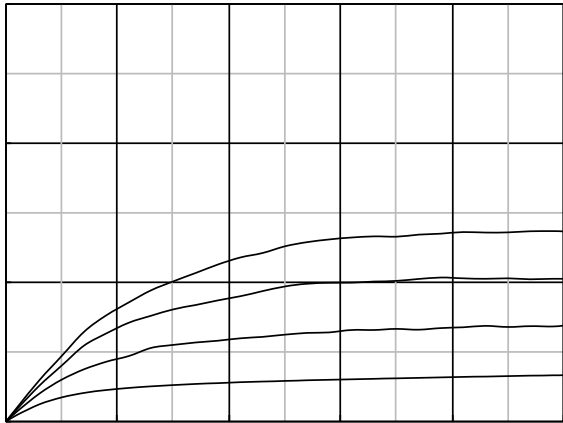


Figure 1. Output Characteristics

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

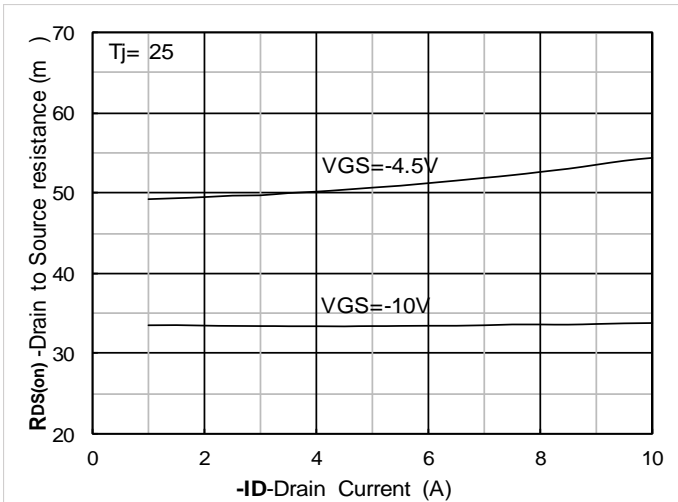


Figure 7. RDS(on) VS Drain Current

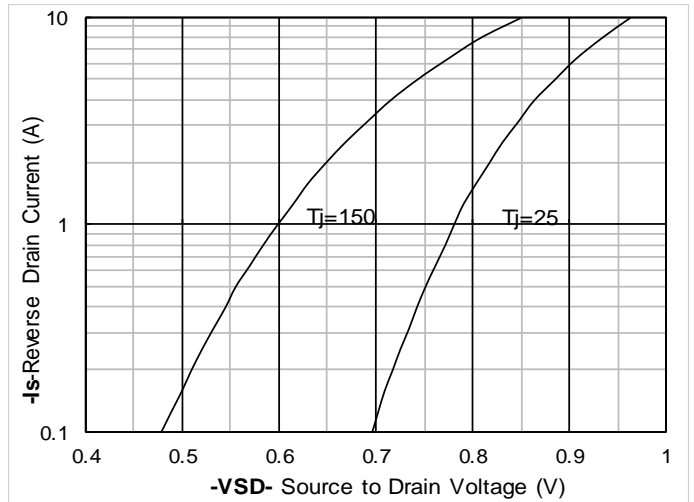


Figure 8. Forward characteristics of reverse diode

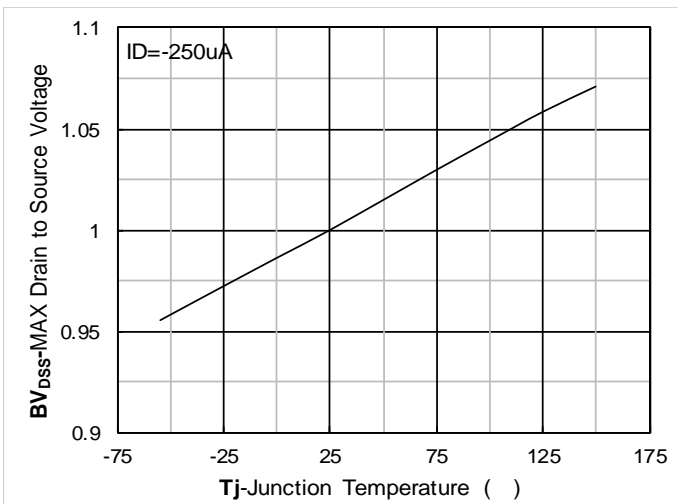


Figure 9. Normalized breakdown voltage

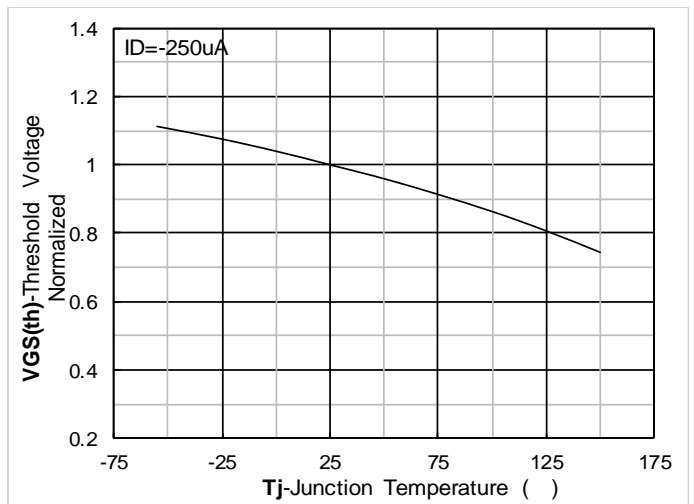


Figure 10. Normalized Threshold voltage

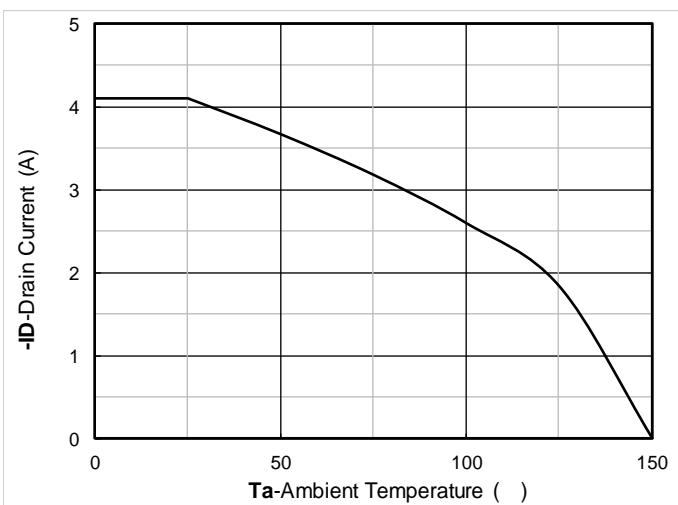


Figure 11. Current dissipation

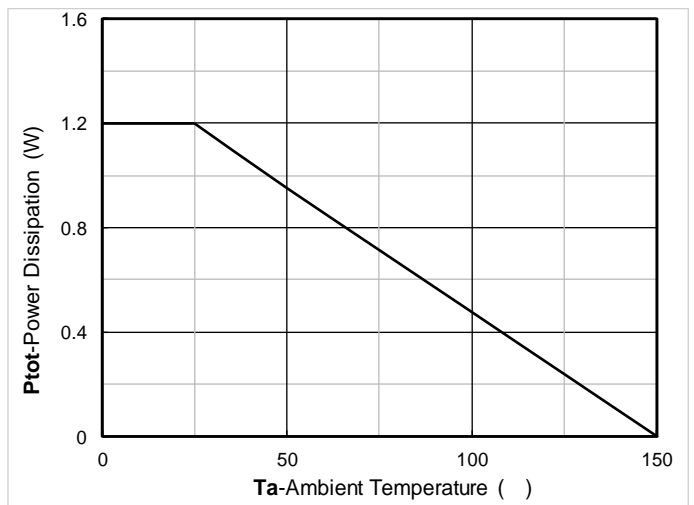
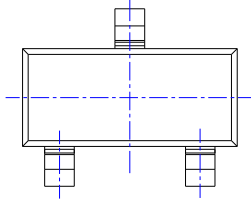


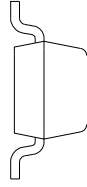
Figure 12. Power dissipation



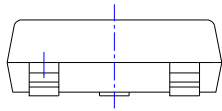
SOT-23 Package information



TOP VIEW



SIDE VIEW



UNIT mm

SUGGESTED SOLDER PAD LAYOUT



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