AT3134EQSH-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	300mΩ@4.5V	0.8A
	400mΩ@2.5V	
	700mΩ@1.8V	

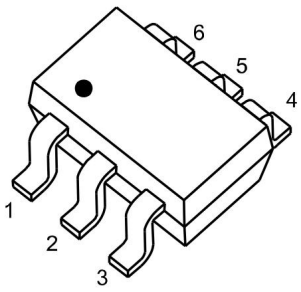
Feature

- Trench power LV MOSFET technology
- High power and current handing capability
- ESD protected
- Suffix "-Q1" for AEC-Q101

Application

- PWM application
- Load switch

Package



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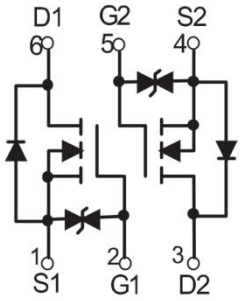
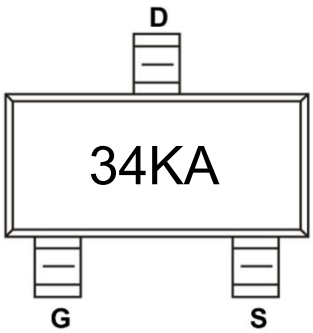
Circuit diagram



Marking



Absolute maximum ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	0.8	A
Continuous Drain Current (T_A=70℃)	I_D (70℃)	0.6	A
Pulsed Drain Current[1)]	I_{DM}	3.3	A
Power Dissipation	P_D	0.29	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	420	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±10V			±10	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.35	0.75	1.1	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.5A		220	300	mΩ
		V_{GS} =2.5V, I_D =0.45A		290	400	
		V_{GS} =1.8V, I_D =0.2A		420	700	
Dynamic characteristics[3)]						
Input Capacitance	C_{iss}	V_{DS} =10V, V_{GS} =0V, f =1MHz		33		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			10		
Total Gate Charge	Q_g	V_{DS} =10V, V_{GS} =4.5V, I_D =0.5A		0.8		nC
Gate-Source Charge	Q_{gs}			0.3		
Gate-Drain Charge	Q_{gd}			0.15		
Turn-on delay time	$t_{d(on)}$	V_{DS} =10V, V_{GS} =4.5V, I_D =0.5A R_G =10Ω		4		nS
Turn-on rise time	t_r			18.8		
Turn-off delay time	$t_{d(off)}$			10		
Turn-off fall time	t_f			23		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				0.8	A
Diode Forward voltage[2)]	V_{SD}	V_{GS} =0V, I_S =0.5A			1.2	V
Reverse Recovery Time	T_{rr}	I_F =0.5A, di/dt =-20A/us		14.4		nS
Reverse Recovery Charge	Q_{rr}			0.4		nC

Notes:

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

2) Pulse Test: Pulse Width ≤300us, Duty Cycle ≤0.5%.

3) Guaranteed by design, not subject to production testing.

Typical Characteristics

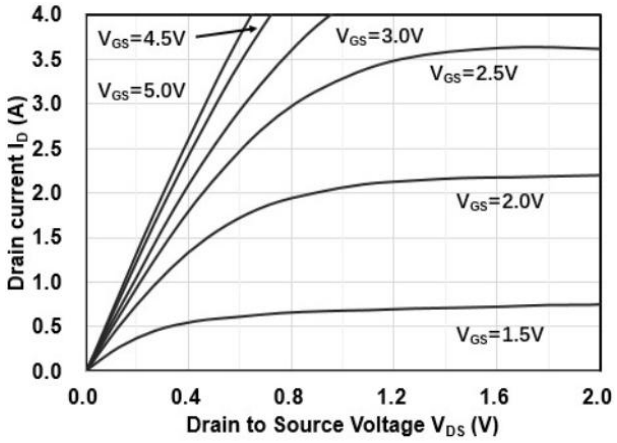


Figure1. Output Characteristics

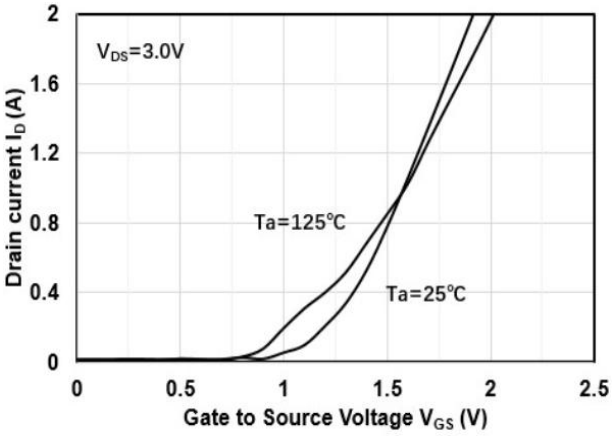


Figure2. Transfer Characteristics

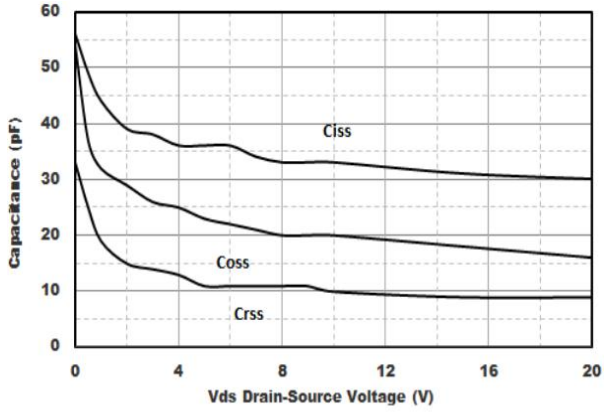


Figure3. Capacitance Characteristics

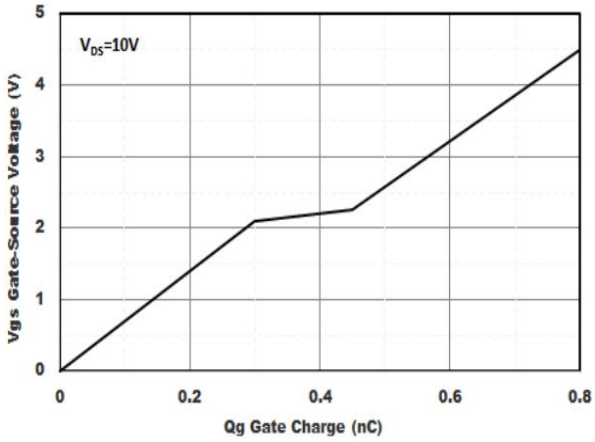


Figure4. Gate Charge

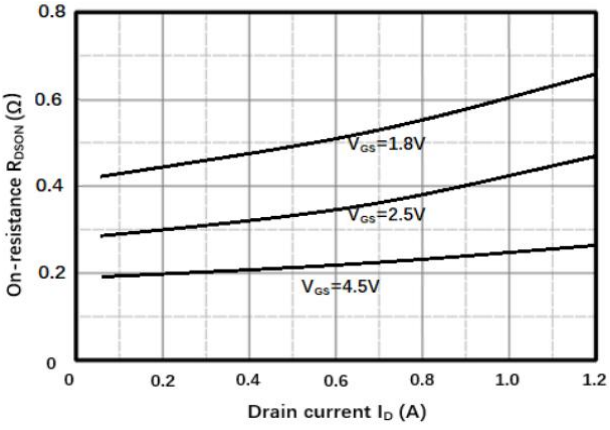


Figure5. Drain-Source on Resistance

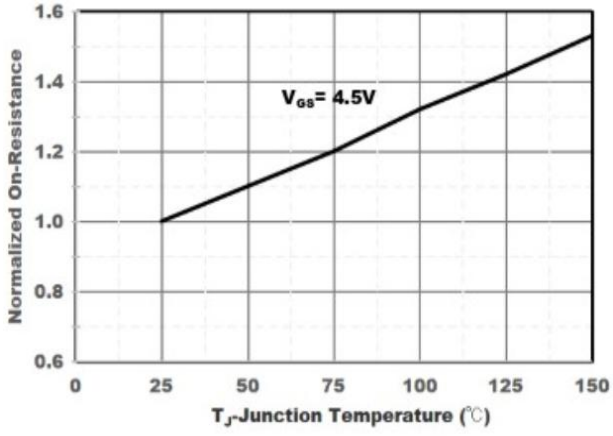


Figure6. Drain-Source on Resistance

Typical Characteristics

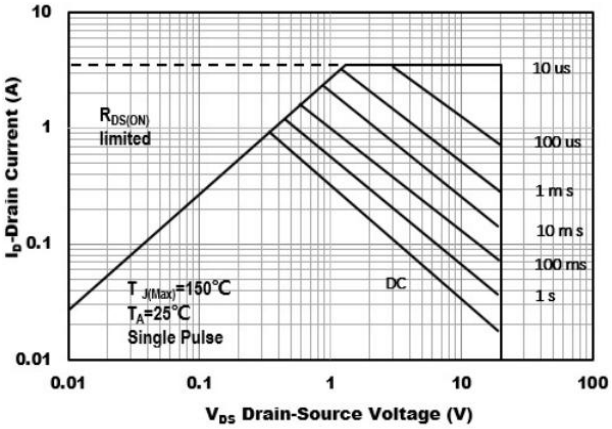


Figure7. Safe Operation Area

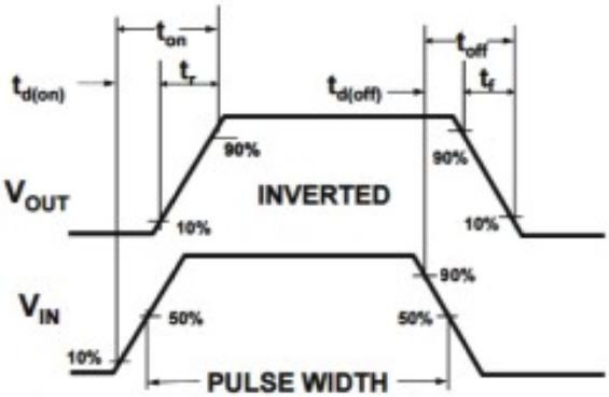
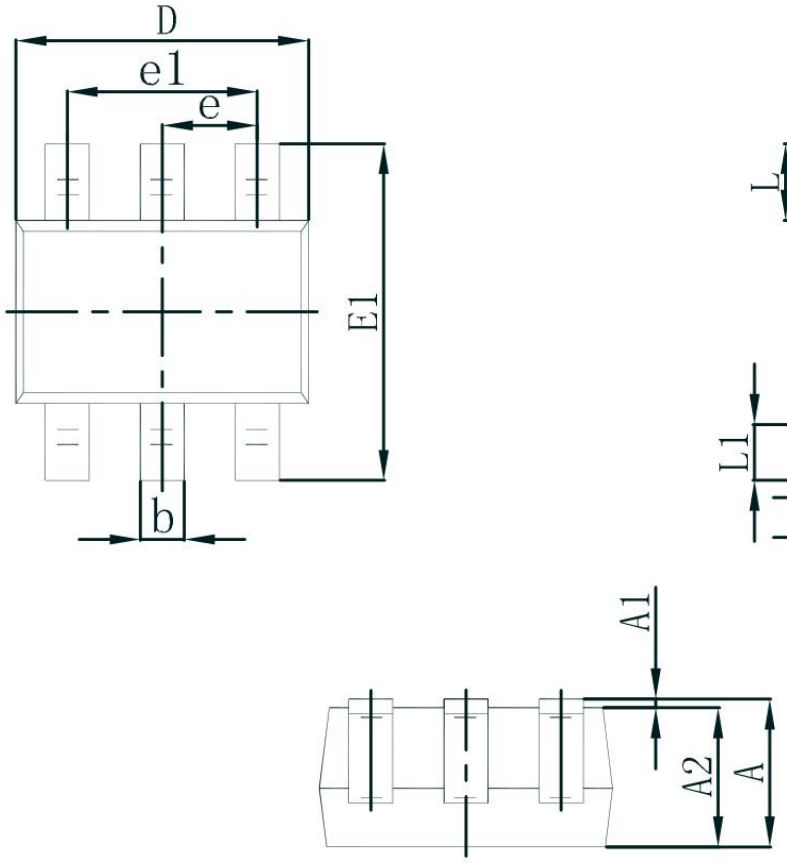


Figure8. Switching wave

SOT-363 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.250	0.004	0.010
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°