AT3134ESC

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	250mΩ@4.5V	0.9A
	280mΩ@2.5V	

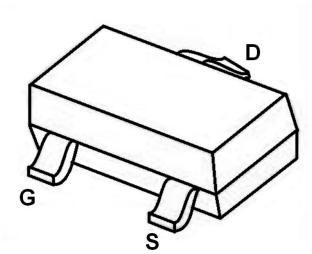
Feature

- Advanced trench technology
- Excellent $R_{DS(ON)}$
- Low gate charge
- ESD Protection

Application

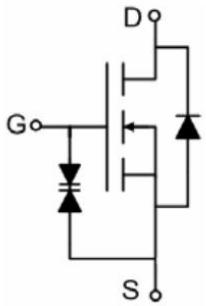
- Battery protection
- Load switch
- Uninterruptible power supply

Package

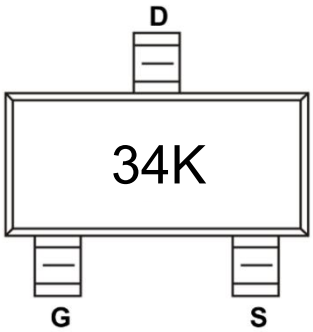


SOT-523

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current[1] (V_{GS} =10V, T_C=25℃)	I_D	0.9	A
Continuous Drain Current[1] (V_{GS} =10V, T_C=100℃)	I_D(100℃)	0.6	A
Pulsed Drain Current	I_{DM}	3.6	A
Power Dissipation[2] (T_C=25℃)	P_D	0.23	W
Thermal Resistance Junction to Ambient[1]	$R_{\theta JA}$	543	℃/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	0.5	0.7	1.2	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.5A		135	250	mΩ
		V_{GS} =2.5V, I_D =0.4A		195	280	
Dynamic characteristics[3]						
Input Capacitance	C_{iss}	V_{DS} =10V, V_{GS} =0V, f =1MHz		60		pF
Output Capacitance	C_{oss}			22		
Reverse Transfer Capacitance	C_{rss}			12		
Total Gate Charge	Q_g	V_{DS} =10V, V_{GS} =4.5V, I_D =0.9A		1		nC
Gate Source Charge	Q_{gs}			0.28		
Gate Drain Charge	Q_{gd}			0.22		
Turn-on delay time	$t_{d(on)}$	V_{DS} =10V, V_{GS} =4.5V, I_D =0.5A R_G =10Ω		2		nS
Turn-on Rise Time	t_r			19		
Turn-off delay time	$t_{d(off)}$			10		
Turn-off Fall Time	t_f			23		
Source-Drain Diode characteristics						
Body-Diode Continuous Current	I_S				0.9	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =0.9A			1.2	V

Notes:

1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2) The power dissipation is limited by 150℃ junction temperature.

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

Typical Characteristics

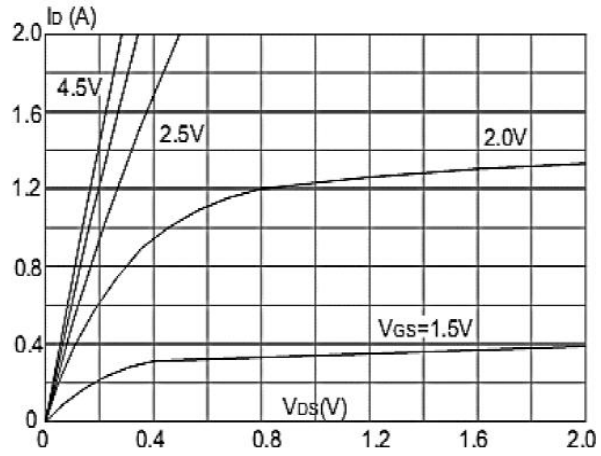


Figure1: Output Characteristics

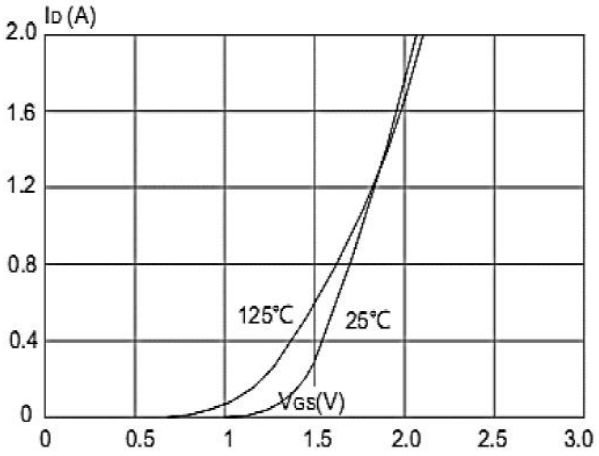


Figure 2: Typical Transfer Characteristics

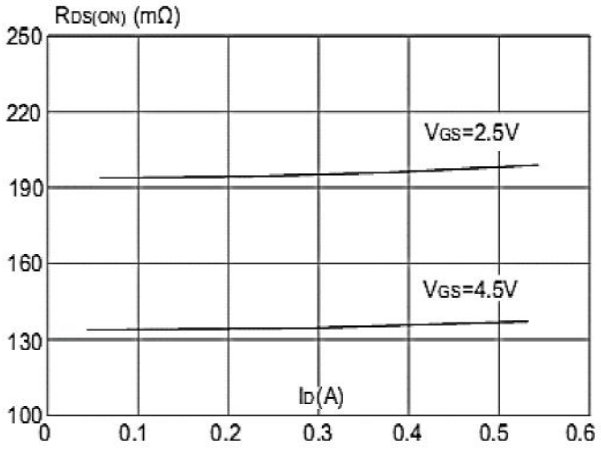


Figure 3:On-resistance vs. Drain Current

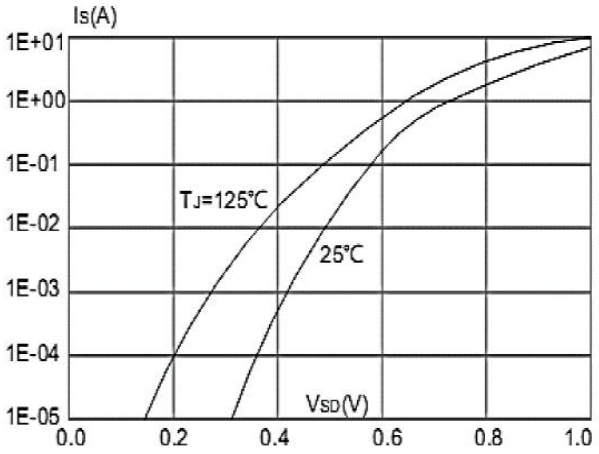


Figure 4: Body Diode Characteristics

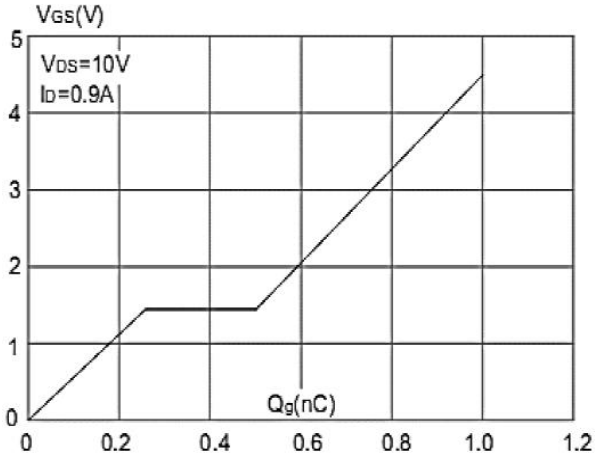


Figure 5: Gate Charge Characteristics

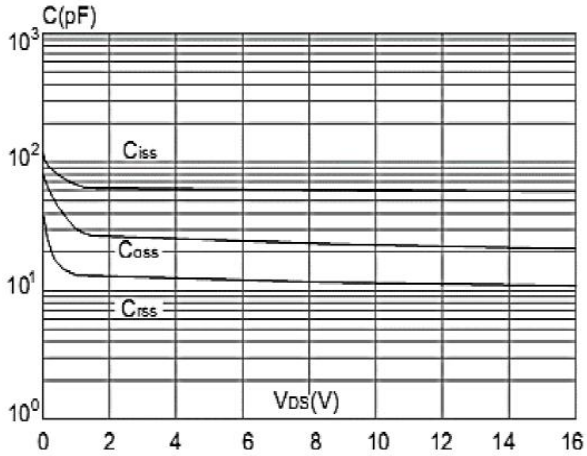


Figure 6: Capacitance Characteristics

Typical Characteristics

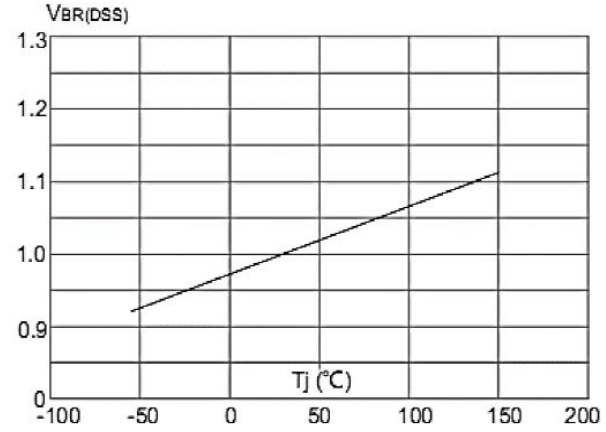


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

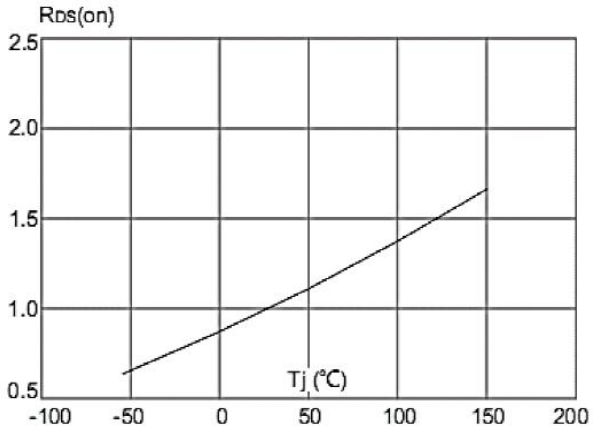


Figure 8: Normalized on Resistance vs. Junction Temperature

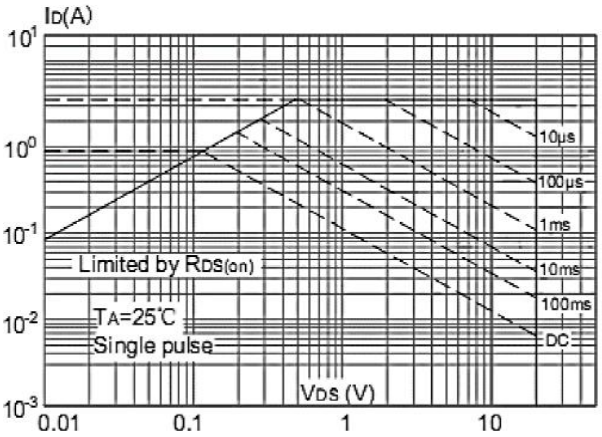


Figure 9: Maximum Safe Operating Area

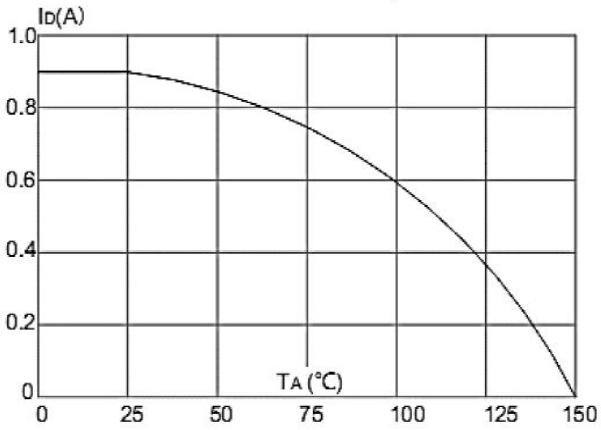


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

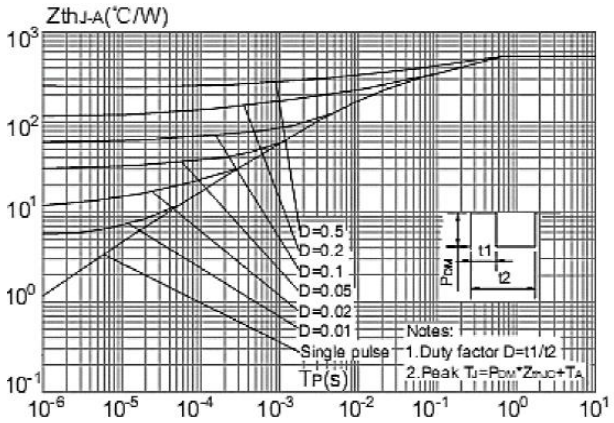
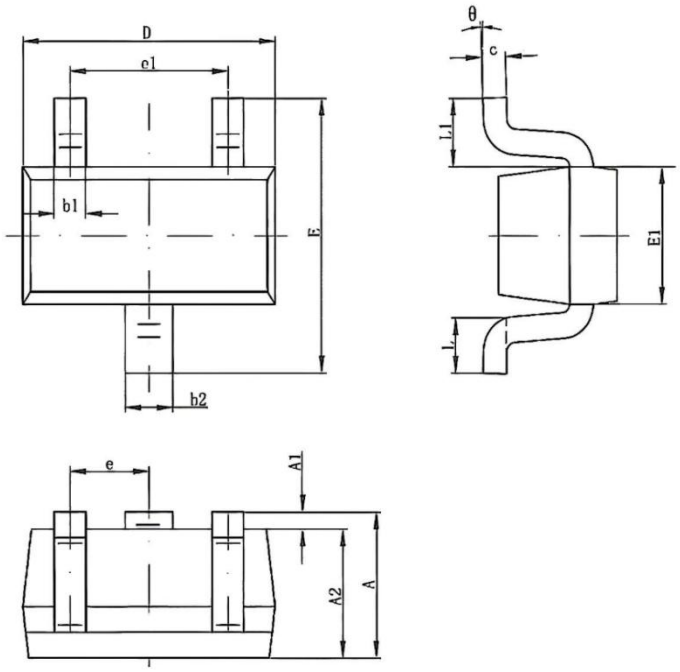


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

SOT-523 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.600	0.900	0.024	0.035
A1	0.000	0.100	0.000	0.004
A2	0.600	0.800	0.024	0.031
b1	0.150	0.350	0.006	0.014
b2	0.250	0.450	0.010	0.018
C	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	1.450	1.750	0.057	0.069
E1	0.700	0.900	0.028	0.035
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°