

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	450mΩ@4.5V	0.6A
	680mΩ@2.5V	

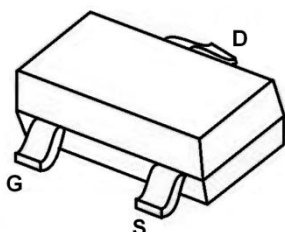
Feature

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

Application

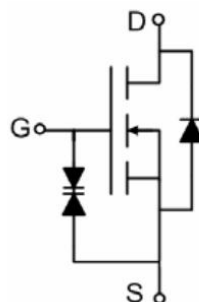
- Battery Protection
- Load Switch
- Uninterruptible Power Supply

Package

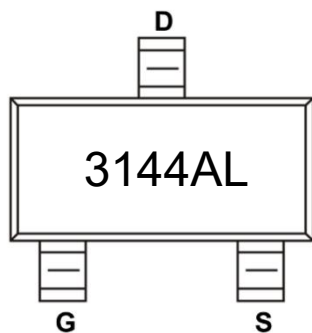


SOT-323

Circuit diagram



Marking



Absolute maximum ratings ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ¹⁾ ($V_{GS}=10\text{V}$, $T_A=25^{\circ}\text{C}$)	I_D	0.6	A
Continuous Drain Current ¹⁾ ($V_{GS}=10\text{V}$, $T_A=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	0.2	A
Pulsed Drain Current	I_{DM}	1.8	A
Power Dissipation ²⁾ ($T_A=25^{\circ}\text{C}$)	P_D	0.3	W
Thermal Resistance Junction to Ambient ¹⁾	$R_{\theta JA}$	416	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 10	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7	0.9	1.2	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.5A$		330	450	m Ω
		$V_{GS}=2.5V, I_D=0.4A$		450	680	
Dynamic characteristics ³⁾						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		40		pF
Output Capacitance	C_{oss}			8		
Reverse Transfer Capacitance	C_{rss}			3.5		
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=4.5V, I_D=0.6A$		0.45		nC
Gate-Source Charge	Q_{gs}			0.12		
Gate-Drain Charge	Q_{gd}			0.1		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=15V, V_{GS}=4.5V, I_D=0.6A$ $R_G=3\Omega$		1.5		nS
Turn-on rise time	t_r			15.5		
Turn-off delay time	$t_{d(off)}$			3.8		
Turn-off fall time	t_f			8		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				0.6	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 $^{\circ}\text{C}$ junction temperature.
- 3) Guaranteed by design, not subject to production testing.

Typical Characteristics

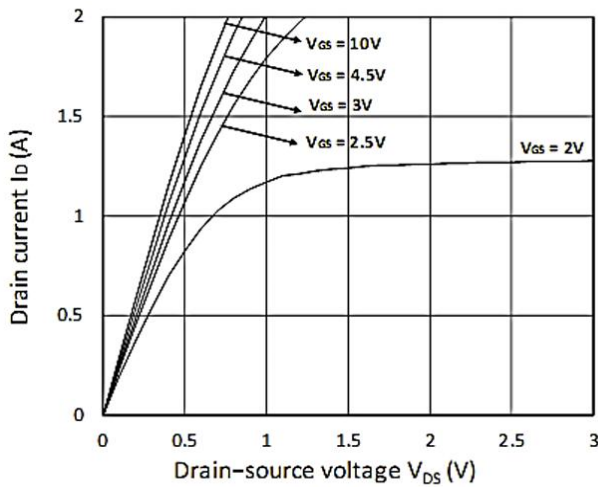


Figure 1. Output Characteristics

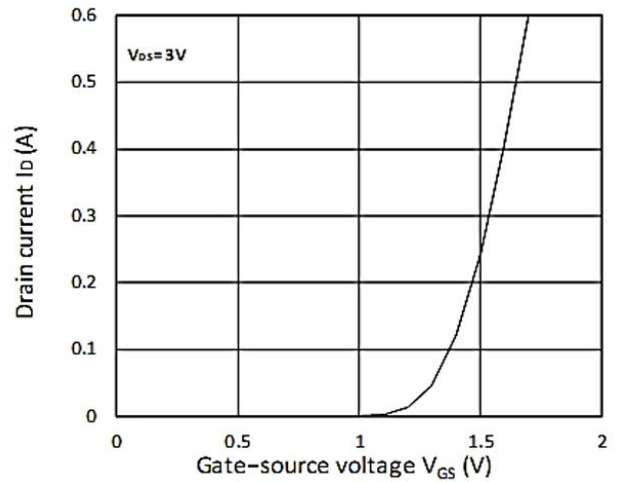


Figure 2. Transfer Characteristics

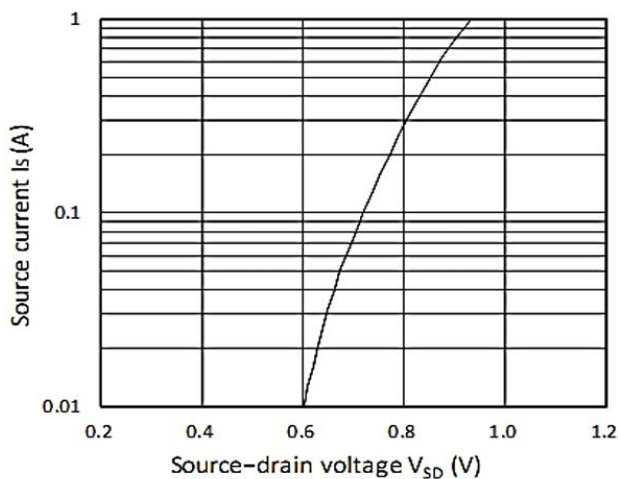


Figure 3. Forward Characteristics of Reverse

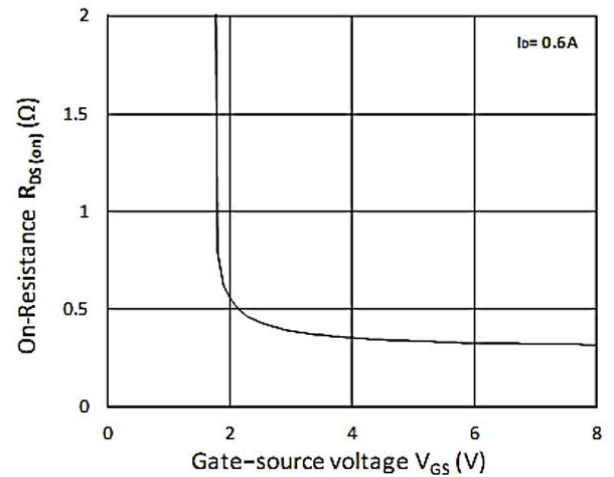


Figure 4. R_DS(ON) vs. V_GS

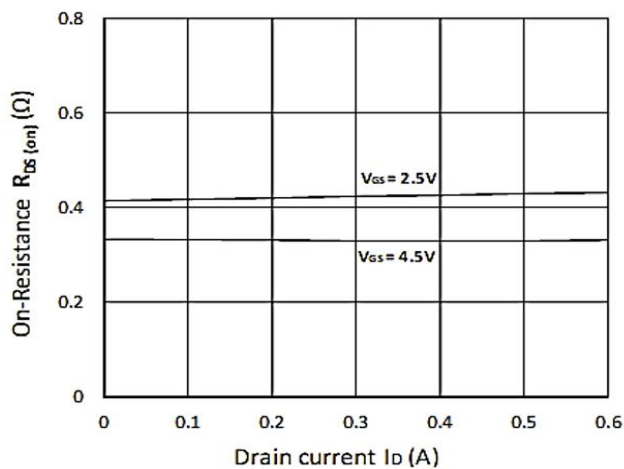


Figure 5. R_DS(ON) vs. I_D

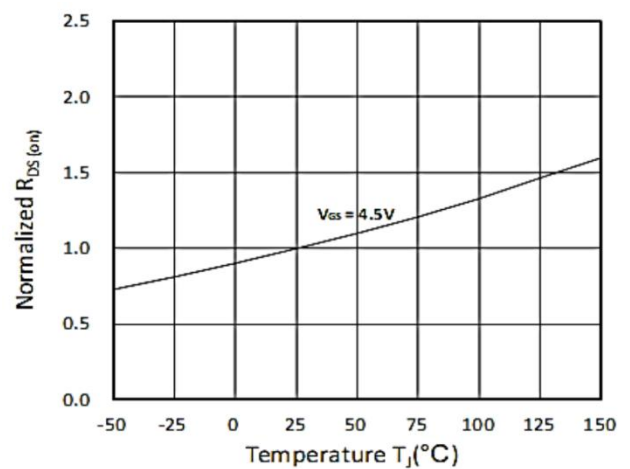


Figure 6. Normalized R_DS(on) vs. Temperature

Typical Characteristics

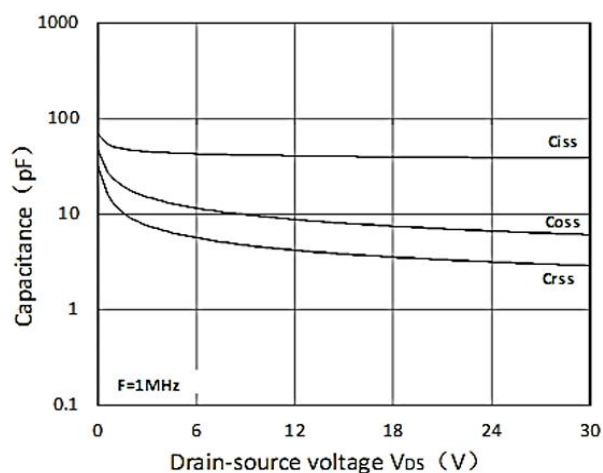


Figure 7. Capacitance Characteristics

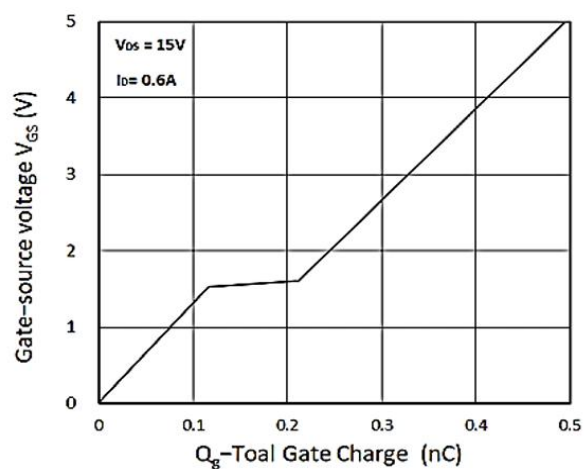
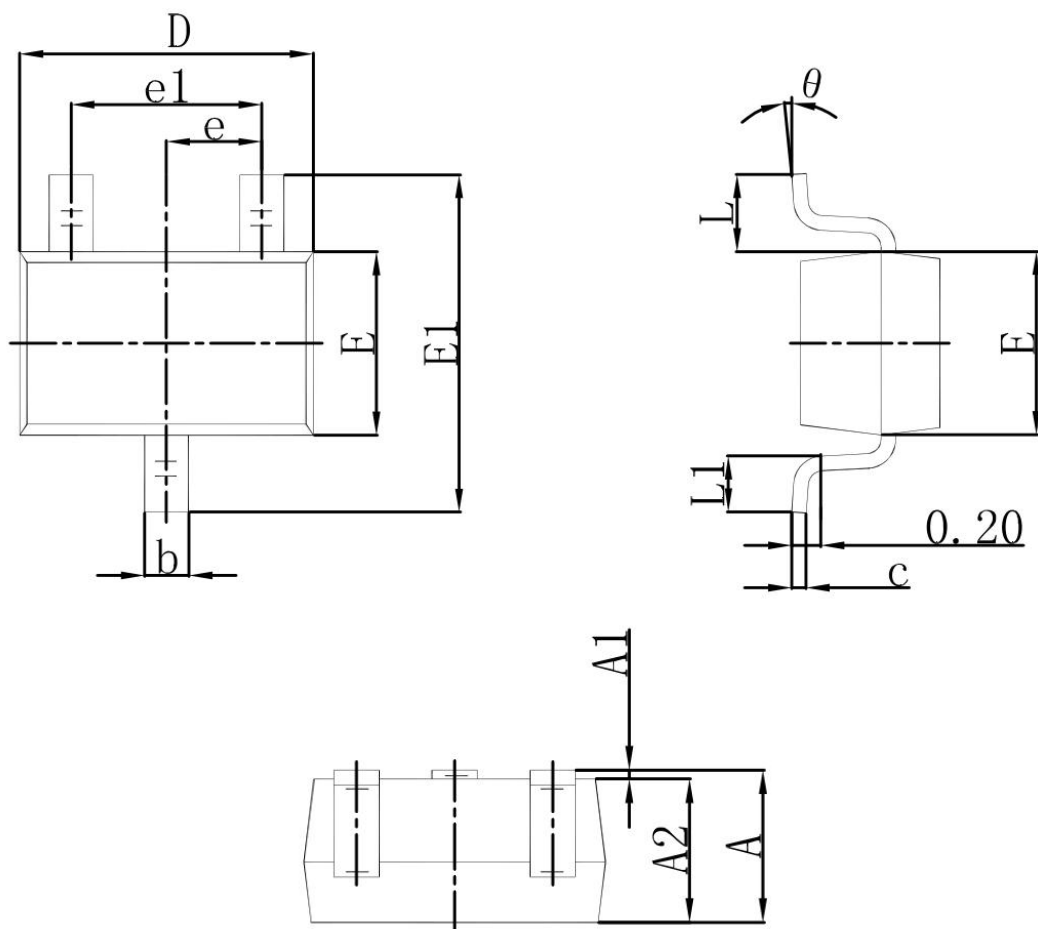


Figure 8. Gate Charge Characteristics

SOT-323 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	0.150	0.004	0.006
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.350	0.085	0.093
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.250	0.400	0.010	0.018
θ	0°	8°	0°	8°