DMG3415U
P-Channel Mosfet

Product Summary

- V_{DS} = -20V, I_D =-4A
  $R_{DS(ON)}$ < 36mΩ @ V_{GS}=-4.5V
  $R_{DS(ON)}$ < 49mΩ @ V_{GS}=-2.5V
  ESD Rating: 2500V HBM

Application

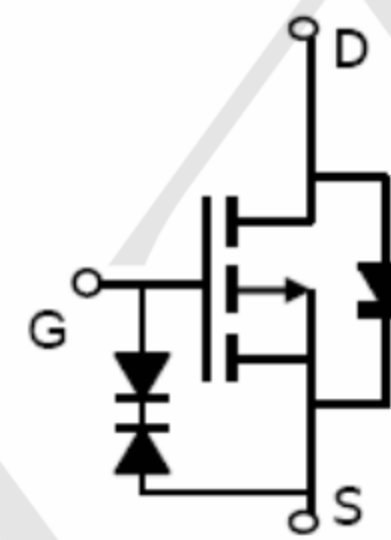- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package and Pin Configuration
SOT-23

Marking:3415

Circuit diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current-Continuous	I_D	-4	A
Drain Current-Pulsed (Note 1)	I_{DM}	-30	A
Maximum Power Dissipation	P_D	1.4	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	℃

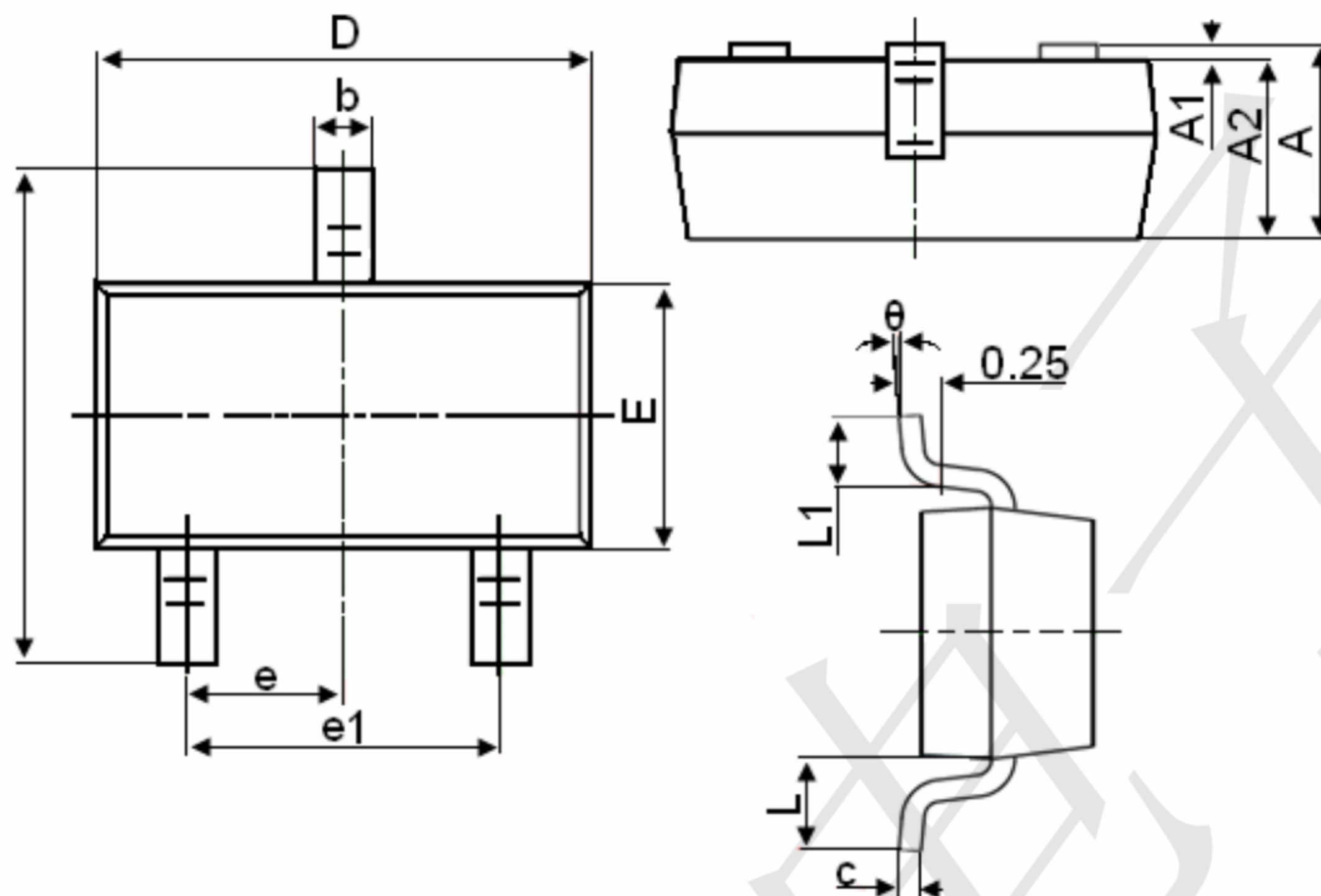## Thermal Characteristic

	Symbol	Limit	Unit
Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	89.3	℃/W

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{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_{GS}=±10V,V_{DS}=0V	-	-	±10	µA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250µA	-0.35	-0.65	-0.9	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-4A	-	29	36	mΩ
		V_{GS}=-2.5V, I_D=-4A	-	37	49	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-4A	8	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{Iss}	V_{DS}=-10V,V_{GS}=0V, F=1.0MHz	-	1181.1	-	PF
Output Capacitance	C_{oss}		-	121.3	-	PF
Reverse Transfer Capacitance	C_{rss}		-	114.8	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-10V,R_L=2. 5Ω V_{GS}=-4.5V,R_{GEN}=3Ω	-	12		nS
Turn-on Rise Time	t_r		-	10		nS
Turn-Off Delay Time	$t_{d(off)}$		-	19		nS
Turn-Off Fall Time	t_f		-	25		nS
Total Gate Charge	Q_g	V_{DS}=-10V,I_D=-4A, V_{GS}=-4.5V	-	10.2		nC
Gate-Source Charge	Q_{gs}		-	1.3	-	nC
Gate-Drain Charge	Q_{gd}		-	2.4	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=-4A	-	-	-1.2	V
Diode Forward Current (Note 2)	I_S		-	-	-4	A

SOT-23 Package Information

Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

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