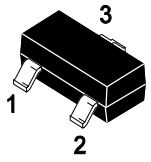
LP3415ELT1G-L
S-LP3415ELT1G-L

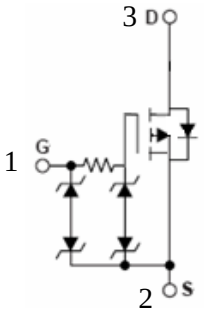
20V P-Channel Enhancement-Mode MOSFET

1. FEATURES

- VDS = -20V
- RDS(ON),VGS@-4.5V,IDS@-4A=60mΩ
- RDS(ON),VGS@-2.5V,IDS@-4A=75mΩ
- RDS(ON),VGS@-1.8V,IDS@-2A=88mΩ
- HBM > 2KV
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



SOT23(TO-236)



2. APPLICATIONS

- Advanced trench process technology
- High density cell design for ultra low on-resistance.

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LP3415ELT1G-L	P15	3000/Tape&Reel
S-LP3415ELT1G-L	P15	3000/Tape&Reel
LP3415ELT3G-L	P15	10000/Tape&Reel
S-LP3415ELT3G-L	P15	10000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	-20	V
Gate–to–Source Voltage – Continuous	VGS	±8	V
Drain Current – Continuous TA = 25°C – Pulsed (Note 1)	 ID IDM	 -4 -30	A
Avalanche Current	IAS	11	A
Avalanche Energy(L = 0.1mH)	EAS	6.05	mJ

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Power Dissipation	PD	1	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RΘJA	150	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

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

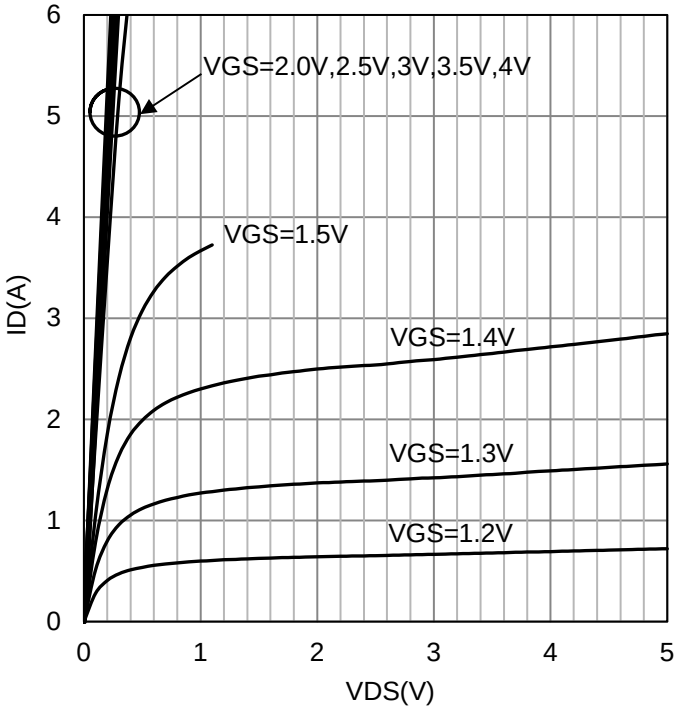
2.1-in² 2oz Cu PCB board.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

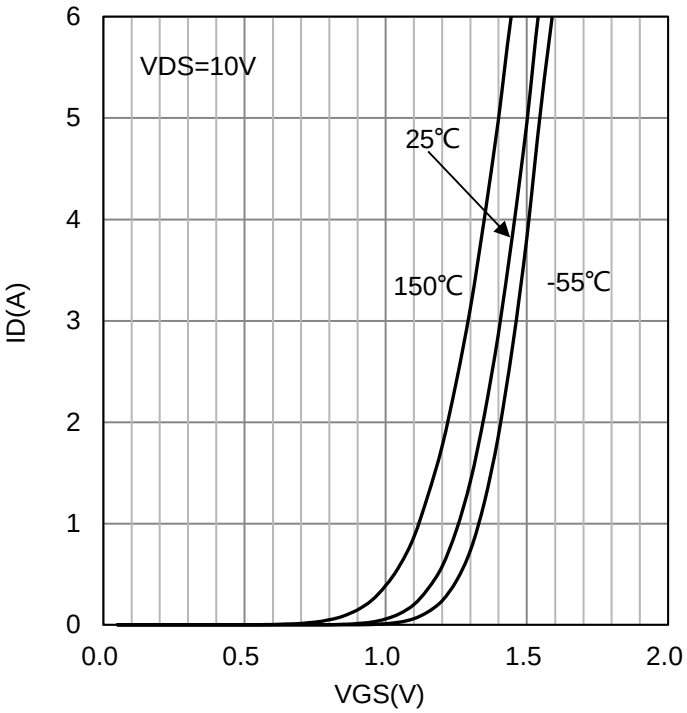
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)	VBRDSS	-20	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = -16 V)	IDSS	-	-	-1	μA
Gate–Body Leakage Current, Forward (VGS = 8 V)	IGSSF	-	-	10	μA
Gate–Body Leakage Current, Reverse (VGS = - 8 V)	IGSSR	-	-	-10	μA
Gate-Source Threshold Voltage (VDS = VGS, ID = -250μA)	VGS(th)	-0.3	-	-1.0	V
Drain-Source On-Resistance(Note 3) (VGS = -4.5V, ID = -4A) (VGS = -2.5V, ID = -4A) (VGS = -1.8V, ID = -2.0A)	RDS(on)	 - - -	 - - -	 60 75 88	mΩ
Dynamic					
Total Gate Charge (VDS=-10V, ID = -4A,VGS = -4.5V)	Qg	-	10.9	-	nC
Gate-Source Charge (VDS=-10V, ID = -4A,VGS = -4.5V)	Qgs	-	1.62	-	nC
Gate-Drain Charge (VDS=-10V, ID = -4A,VGS = -4.5V)	Qgd	-	3.4	-	nC
Input Capacitance (VDS =-10V, f=1.0MHz,VGS = 0V)	Ciss	-	1091	-	pF
Output Capacitance (VDS =-10V, f=1.0MHz,VGS = 0V)	Coss	-	93	-	pF
Reverse Transfer Capacitance (VDS =-10V, f=1.0MHz,VGS = 0V)	Crss	-	88	-	pF
Gate-Resistance (VGS = 0 V, VDS=0V,f=1MHz)	Rg	-	183	-	Ω
Turn-On Delay Time (VDD = -10V, RL=10Ω ID = -1A, VGEN = -4.5V, RG = 3.1Ω)	td(on)	-	48	-	ns
Rise Time	tr	-	98	-	
Turn-Off Delay Time	td(off)	-	642	-	
Fall Time	tf	-	282	-	
Forward Voltage (VGS = 0 V, ISD = -1.0 A)	VSD	-	-	-1.5	V
Max.Forward Current	IS	-	-	-2.2	A

3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

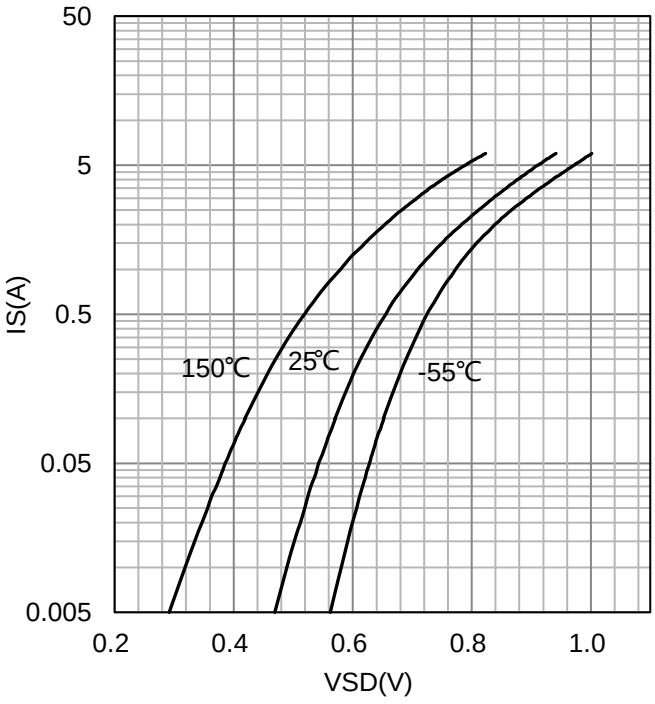
7. ELECTRICAL CHARACTERISTICS CURVES



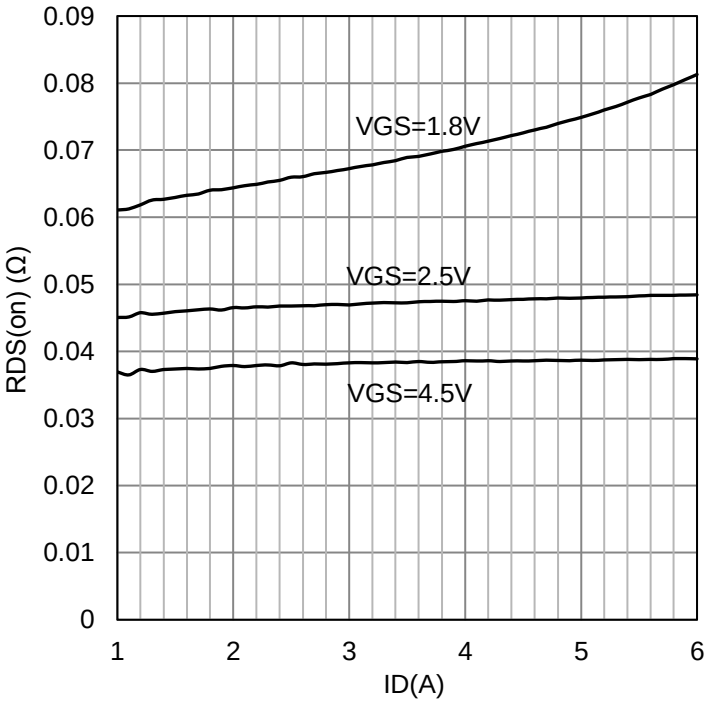
ID vs. VDS



ID vs. VGS

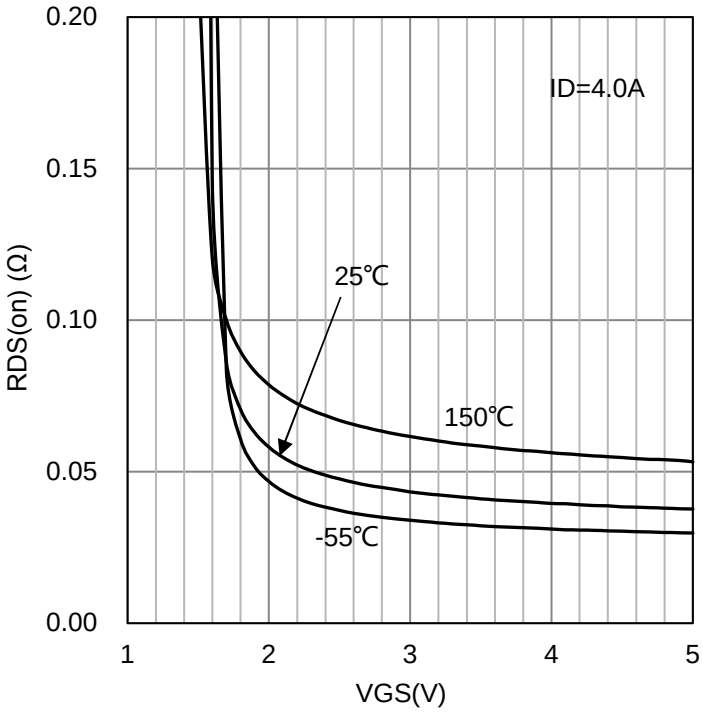


IS vs. VSD

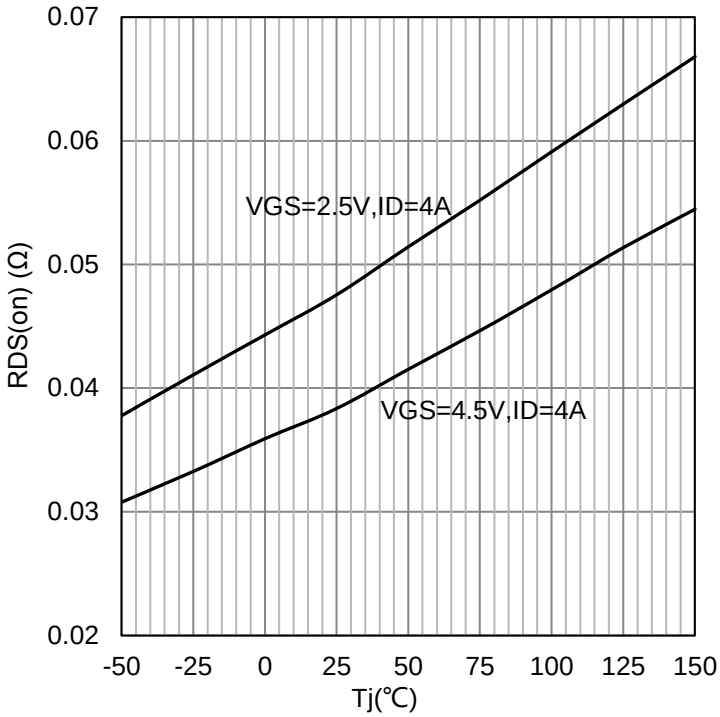


RDS(on) vs. ID

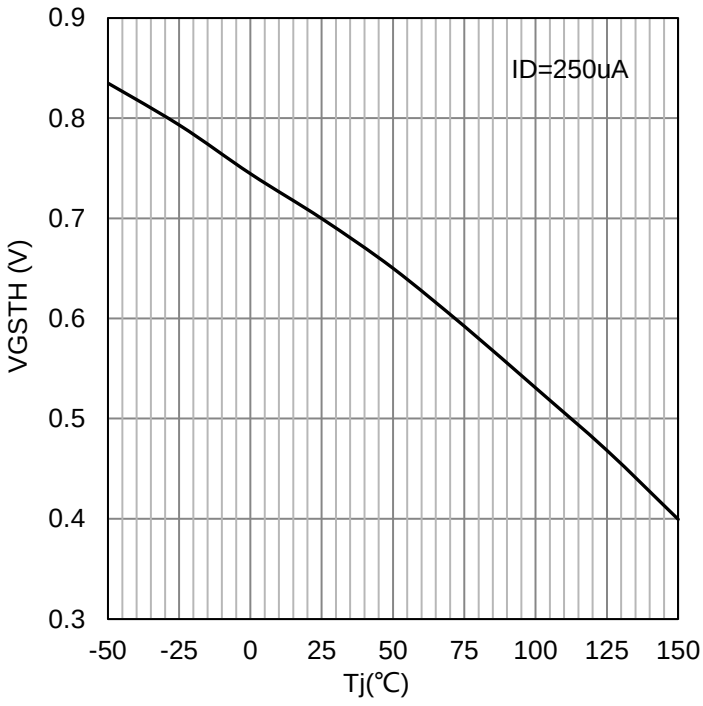
7.ELECTRICAL CHARACTERISTICS CURVES（Con.）



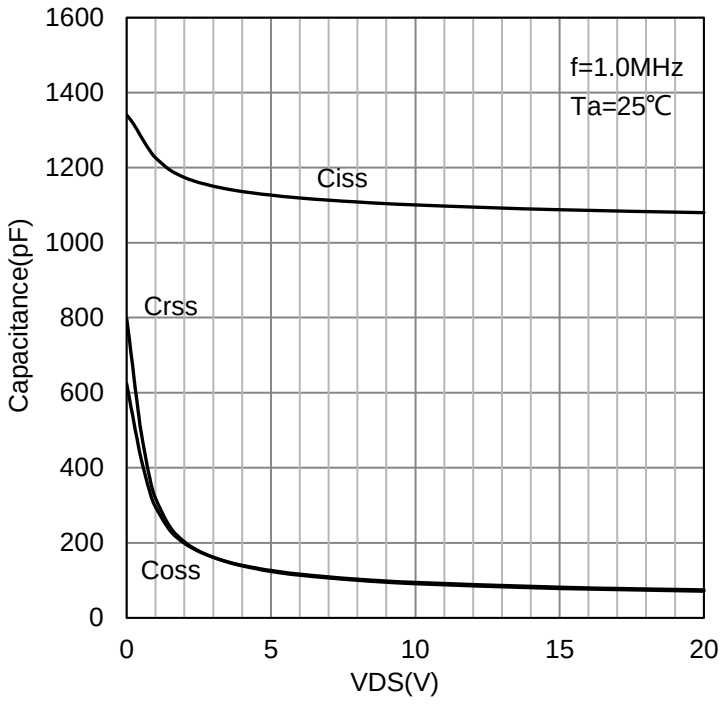
RDS(on) vs. VGS



RDS(on) vs. Tj

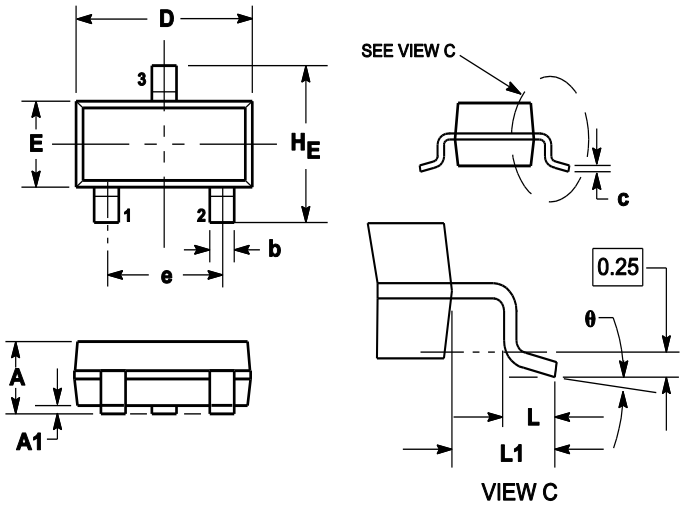


VGSTH vs. Tj



Capacitance

8.OUTLINE AND DIMENSIONS

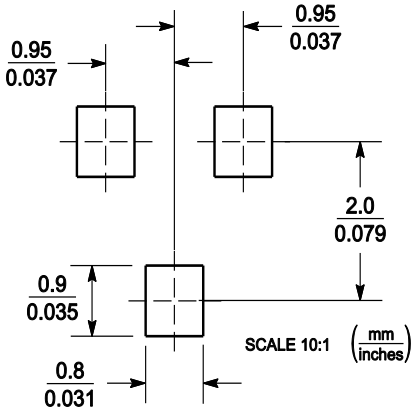


Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

9.SOLDERING FOOTPRINT



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