1. Description

The SI7149DP-T1-GE3(ES) uses advanced trench technology MOSFETs to provide excellent $R_{DS(ON)}$ and low gate charge. Device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product SI7149DP-T1-GE3(ES) Pb-free.

2. Features

- -30V $R_{DS(ON)}$=3.5mΩ(Typ.) @V_{GS}=-10V
  $R_{DS(ON)}$=6.1mΩ(Typ.) @V_{GS}=-4.5V
- Fast Switching
- High density cell design for low $R_{DS(on)}$
- Material: Halogen free
- Reliable and rugged
- Avalanche Rated
- Low leakage current

3. Applications

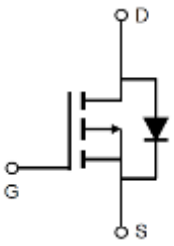
- PWM applications
- Load switch
- Power management in portable/desktop PCs
- DC/DC conversion

100% UIS TESTED

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
SI7149DP-T1-GE3(ES)	PDFN5*6-8L	.N6407/LOT	Halogen free	Tape & Reel	5,000 PCS	UL 94V-0	13 inches

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
4	Gate	Note b 	
1/2/3	Source		
5/6/7/8	Drain		

6. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 ℃ ambient temperature unless otherwise specified.

Parameter		Symbol	Limited	Unit
Drain-Source Voltage		BV_{DSS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	-85	A
	T_C=100°C		-51	
Maximum Power Dissipation		P_D	52	W
Pulsed Drain Current		I_{DM}	-340	A
Single Pulse Avalanche Current [a]		I_{AS}	-33	A
Single Pulse Avalanche Energy [a]		E_{AS}	272	mJ
Operating Junction Temperature		T_J	-55 to +150	°C
Storage Temperature Range		T_{stg}	-55 to +150	°C

Thermal resistance ratings

Parameter	Symbol	Typical	Maximum	Unit
Junction-to-Case Thermal Resistance	$R_{\theta JC}$		2.4	℃/W

Notes:

a: EAS condition: V_{DD}= -30V, V_G= -10V, L= 0.5mH, R_G=25ohm, Tj=25℃.

b: This diagram is only an electrical schematic, and the actual pin size is based on POD.

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Electrical Characteristics

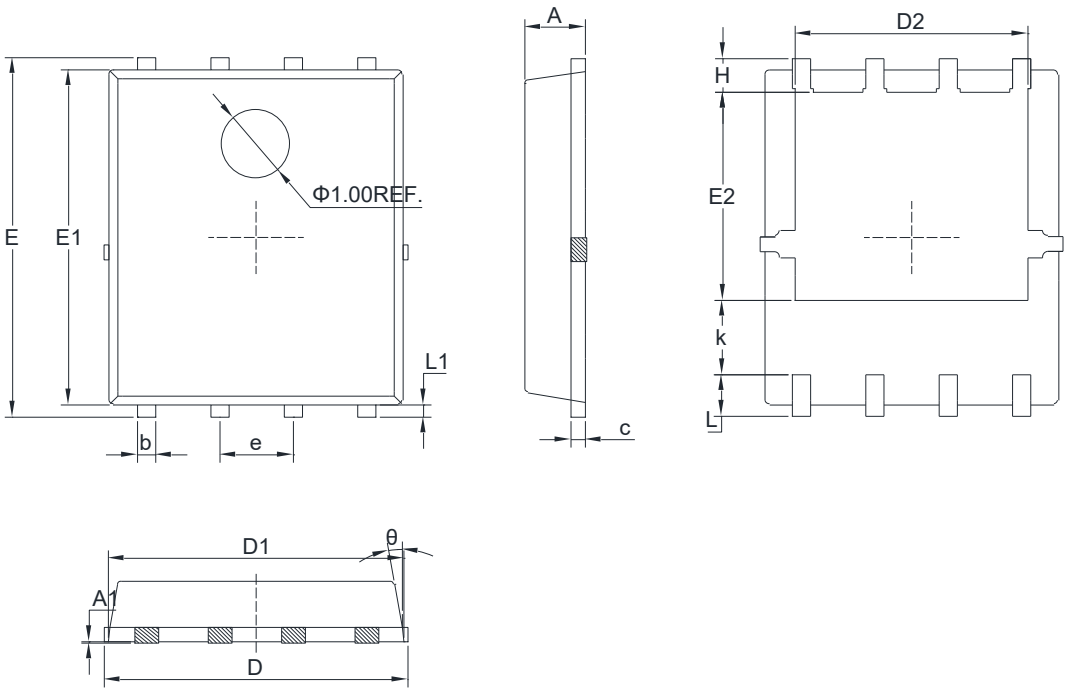
At TA = 25℃ unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250uA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=-30V			-1	uA
Gate-to-source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=-250uA	-1.2	-1.6	-2.2	V
Drain-to-source On-resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-20A		3.5	4.5	mΩ
		V_{GS}=-4.5V, I_D=-10A		6.1	7.9	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =-15V f=1MHz		4670		pF
Output Capacitance	C_{OSS}			710		
Reverse Transfer Capacitance	C_{RSS}			561		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS}=0 to -10V, V_{DS}=-15V, I_D=-30A		78		nC
Gate-to-Source Charge	Q_{GS}			13		
Gate-to-Drain Charge	Q_{GD}			18		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{d(ON)}$	V_{GS}=-10V, V_{DD}=-15V I_D=-30A, R_G=3Ω		17.5		ns
Rise Time	t_r			50		
Turn-Off Delay Time	$t_{d(OFF)}$			108		
Fall Time	t_f			70		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS}=0V, I_{SD}=-20A			-1.2	V

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7. Dimension (PDFN5*6-8L)

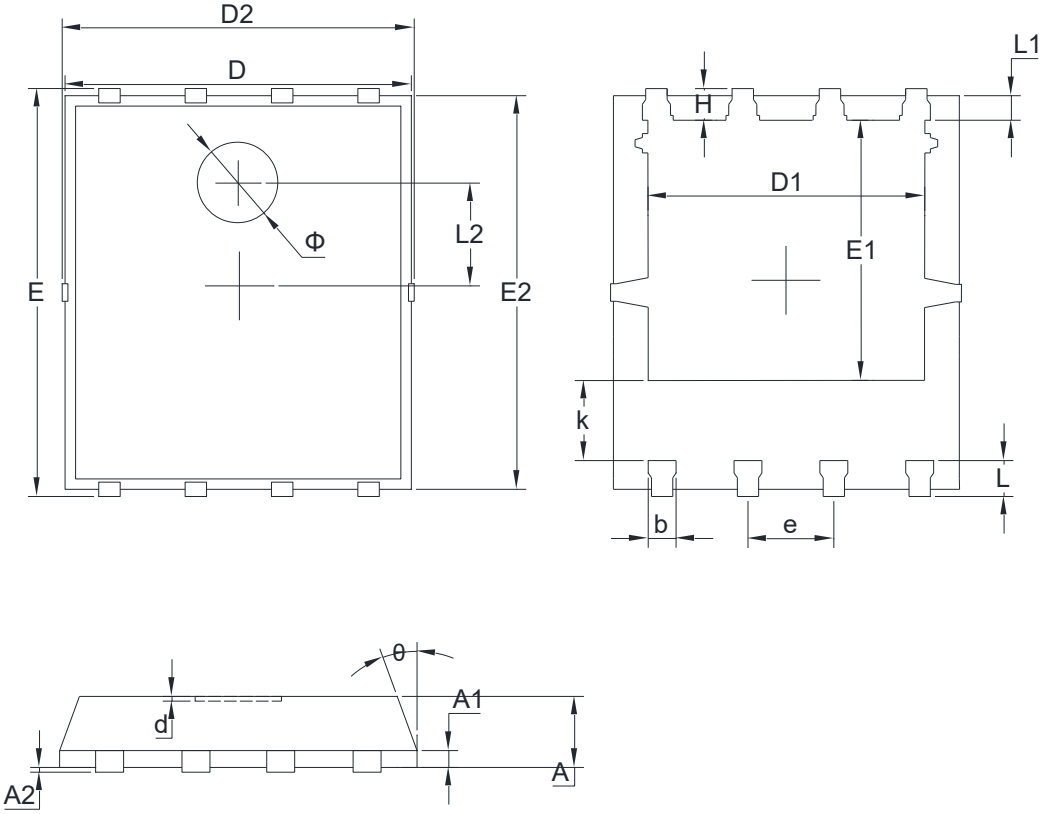
POD A(Q)



Symbol	Dimensions in Millimeters			Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX		MIN	NOM	MAX
A	0.90	1.00	1.10	H	0.46	0.56	0.66
A1			0.05	k	1.10		
b	0.30	0.40	0.50	L	0.51	0.61	0.71
c	0.20	0.25	0.30	L1	0.05	0.15	0.25
D	4.80	5.10	5.40	θ	8°	10°	12°
D2	3.75	3.90	4.05	D1	4.80	4.90	5.00
E	5.95	6.05	6.15				
E1	5.65	5.75	5.85				
e	1.27BCS						
E2	3.34	3.49	3.64				

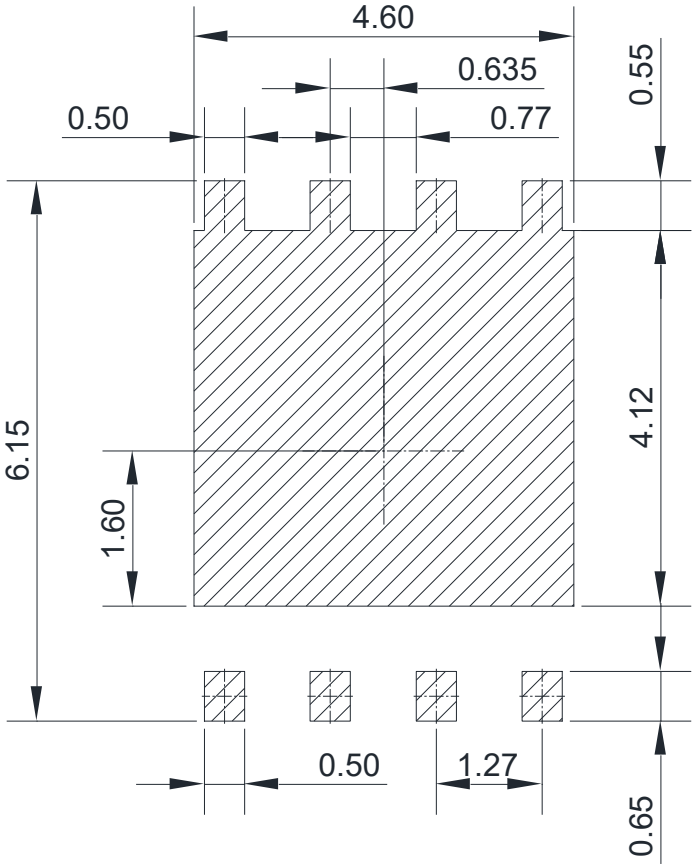
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POD B(X)



Symbol	Dimensions in Millimeters			Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX		MIN	NOM	MAX
A	0.900	1.000	1.100	H	0.549	0.625	0.701
A1	0.254 REF			k	1.190	1.290	1.390
A2	0.000		0.050	L	0.534	0.610	0.686
D	4.824	4.900	4.976	L1	0.424	0.500	0.576
D1	3.910	4.010	4.110	θ	8°	10°	12°
D2	4.924	5.000	5.076	L2	1.800 REF		
E	5.924	6.000	6.076	Φ	1.100	1.200	1.300
E1	3.375	3.475	3.575	d			0.100
e	1.270 TYP			b	0.350	0.400	0.450
E2	5.674	5.750	5.826				

8. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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