

SuperMOS –PDFN3*3-8L 60V BV_{DSS} , 7m Ω $R_{DS(on)}$, N-channel MOSFET

1. Description

The CSD18543Q3A(ES) is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. Device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product CSD18543Q3A(ES) is Pb-free.

2. Features

- 60V, $R_{DS(ON)}=7m\Omega$ (TYP.) @ $V_{GS}=10V$
 $R_{DS(ON)}=8.7m\Omega$ (TYP.) @ $V_{GS}=4.5V$
- 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

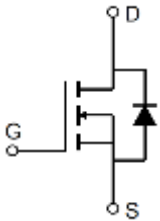
Part Number	Package	Marking	Material	Packaging	Quantity per reel	Flammability Rating	Reel Size
CSD18543Q3A(ES)	PDFN3*3-8L	.NH06R09/LO T	Halogen free	Tape & Reel	5000 PCS	UL 94V-0	13 inches

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
4	Gate		
1/2/3	Source		

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Rev-1.1

5/6/7/8	Drain		
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6. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		BV_{DSS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}\text{C}$	I_D	55	A
	$T_C=100^{\circ}\text{C}$		33	
Maximum Power Dissipation		P_D	48	W
Pulsed Drain Current		I_{DM}	220	A
Avalanche Current, Single Pulsed ^a		I_{AS}	20	A
Avalanche Energy, Single Pulsed ^a		E_{AS}	100	mJ
Operating Junction Temperature		T_J	-55 to 150	$^{\circ}\text{C}$
Lead Temperature		T_L	260	$^{\circ}\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150	$^{\circ}\text{C}$

Thermal resistance ratings

Single Operation					
Parameter	Symbol	Typ	Max	Unit	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$		2.6	$^{\circ}\text{C/W}$	

Note:

a: $T_J=25^{\circ}\text{C}$, $V_{DD}=30\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_g=25\Omega$.

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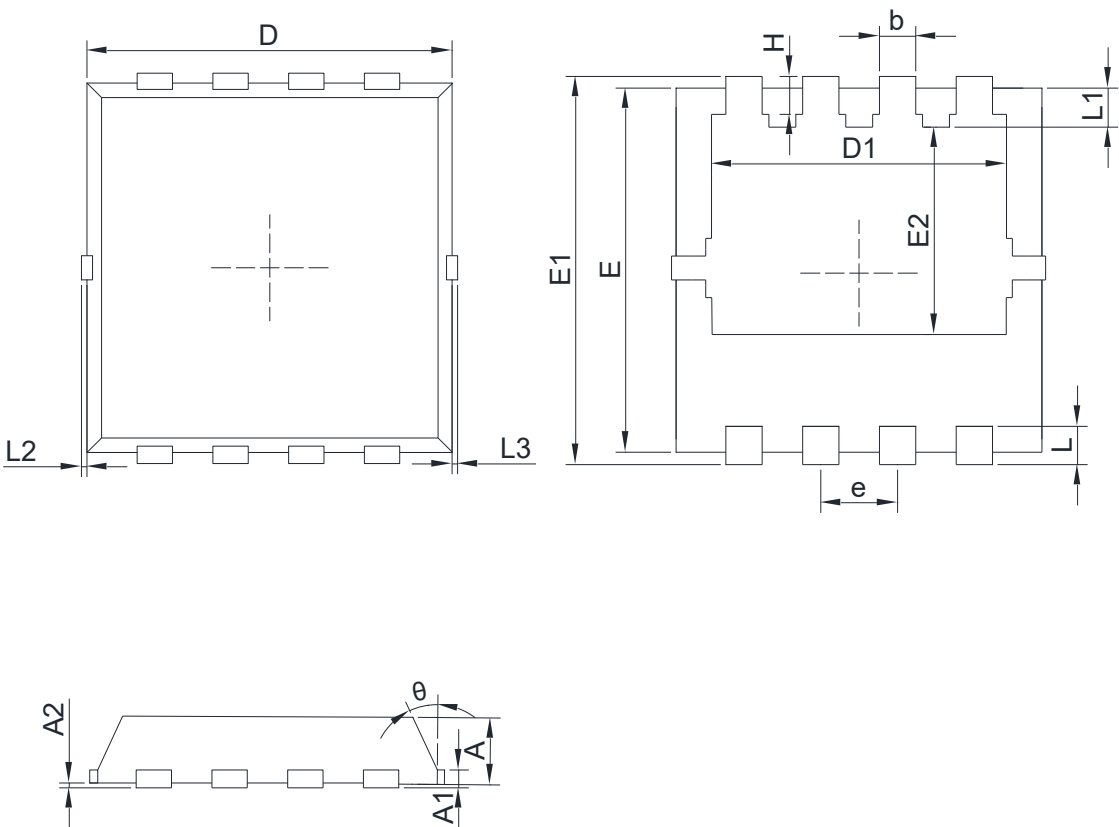
Electrical Characteristics

At TA = 25°C 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	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1.0	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250uA	1.2	1.6	2.3	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		7	9.1	mΩ
		V _{GS} =4.5V, I _D =10A		8.7	11.3	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} =0V, f=1MHz, V _{DS} =25V		3034		pF
Output Capacitance	C _{OSS}			198		
Reverse Transfer Capacitance	C _{RSS}			167		
Total Gate Charge	Q _{G(TOT)}	V _{GS} =0 to 10V, V _{DS} =30V, I _D =30A		77		nC
Gate-to-Source Charge	Q _{GS}			14		
Gate-to-Drain Charge	Q _{GD}			15		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DD} =30V, I _D =30A, R _G =1.8Ω		13		ns
Rise Time	t _r			77		
Turn-Off Delay Time	t _{d(OFF)}			50		
Fall Time	t _f			106		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V

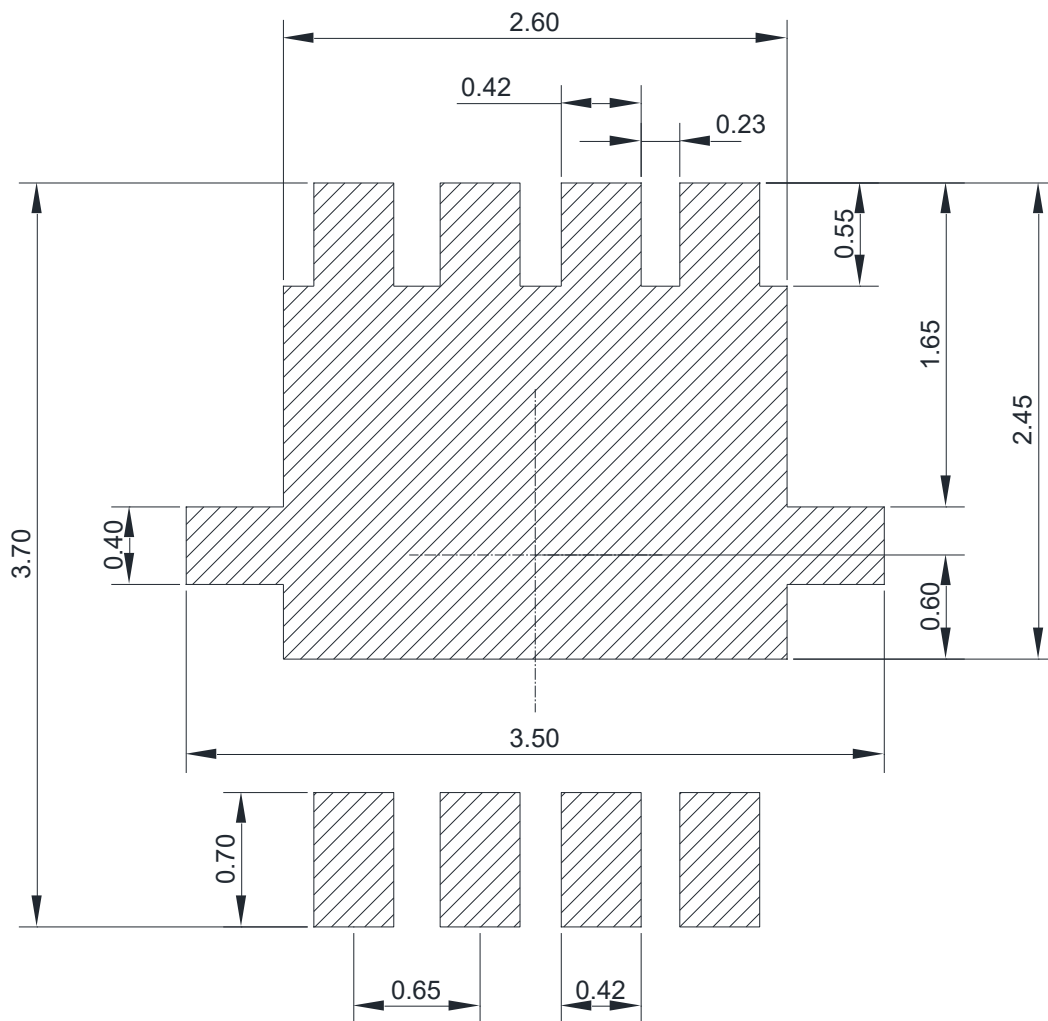
7. Dimension (PDFN3*3-8L)

POD(X)



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER							
SYMBOL	MIN	TYP	MAX	SYMBOL	MIN	TYP	MAX
A	0.700	0.800	0.900	L	0.300	0.400	0.500
A1	0.152 REF			L1	0.180	0.330	0.480
A2	0~0.05			L2	0~0.100		
D	3.000	3.100	3.200	L3	0~0.100		
D1	2.300	2.450	2.600	H	0.315	0.415	0.515
E	2.900	3.000	3.100	b	0.200	0.300	0.400
E1	3.150	3.300	3.450	e	0.550	0.650	0.750
E2	1.535	1.735	1.935	θ	8°	10°	12°

8. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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