

SuperMOS –PDFN5*6-8L 100V BV_{DSS}, 3mΩ R_{DS(ON)} N-channel MOSFET

1. Description

The BSC030N08NS5(ES) is N-Channel enhancement MOS Field Effect Transistor. Using advanced shielded gate 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 BSC030N08NS5(ES) is Pb-free.

2. Features

- 100V, R_{DS(ON)}=3mΩ(Typ.) @V_{GS}=10V
 - High density cell design for low R_{DS(on)}
 - Material: Halogen free
- Reliable and rugged
 - Avalanche Rated
 - Low leakage current

3. Applications

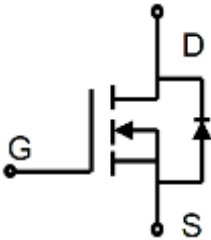
- PWM applications
- Load switch
- Power management in portable/desktop PCs
- DC/DC conversion

100% UIS TESTED

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
BSC030N08NS5(ES)	PDFN5*6-8L	.GNJ10R040/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		
1/2/3	Source		
5/6/7/8	Drain		

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}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}\text{C}$	I_D	138	A
	$T_C=100^{\circ}\text{C}$		82.8	
Maximum Power Dissipation		P_D	139	W
Pulsed Drain Current		I_{DM}	552	A
Avalanche Current, Single Pulsed ^a		I_{AS}	37	A
Avalanche Energy, Single Pulsed ^a		E_{AS}	342	mJ
Operating Junction Temperature		T_J	-55 to 150	°C
Lead Temperature		T_L	260	°C
Storage Temperature Range		T_{stg}	-55 to 150	°C

Thermal resistance ratings

Single Operation				
Parameter	Symbol	Typical	Maximum	Unit
Junction-to-Case Thermal Resistance	$R_{\theta JC}$		0.9	°C/W

Note:

a: $T_J=25^{\circ}\text{C}$, $V_{DD}=50\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_g=25\Omega$.

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Rev-1.1

Electrical Characteristics

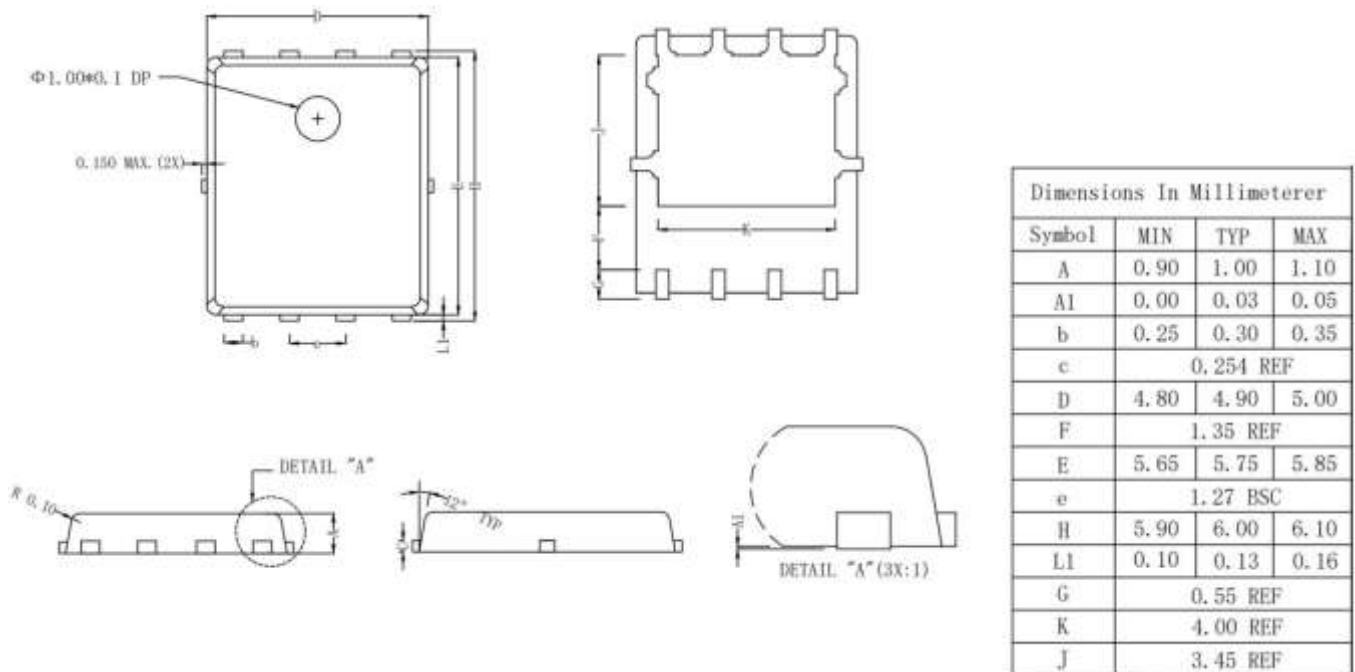
At TA = 25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	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	2.4	2.7	3.6	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A		3	3.9	mΩ
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} =0V, f=1MHz, V _{DS} =50V		3658		pF
Output Capacitance	C _{OSS}			1536		
Reverse Transfer Capacitance	C _{RSS}			19		
Total Gate Charge	Q _{G(TOT)}	V _{GS} =0 to 10V, V _{DS} =50V, I _D =20A		49		nC
Gate-to-Source Charge	Q _{GS}			17		
Gate-to-Drain Charge	Q _{GD}			6		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DD} =50V, I _D =48A, R _G =6Ω		26		ns
Rise Time	t _r			15		
Turn-Off Delay Time	t _{d(OFF)}			28		
Fall Time	t _f			12		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} =0V, I _S =30A			1.2	V

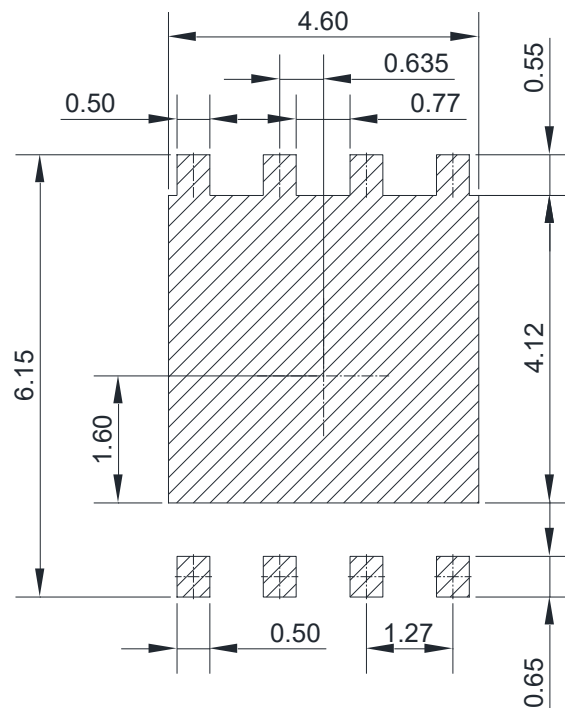
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7. Dimension (PDFN5*6-8L)



8. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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