

SuperMOS – SOT-223 100V BV_{DSS} , 125m Ω $R_{DS(ON)}$, N-channel MOSFET

1. Description

The DMN10H220LE-13-ES is N-Channel enhancement MOS Field Effect Transistor. Uses advanced 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 DMN10H220LE-13-ES is Pb-free.

2. Features

- 100V, $R_{DS(ON)}$ =125m Ω (TYP.) @ V_{GS} =10V
- $R_{DS(ON)}$ =135m Ω (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

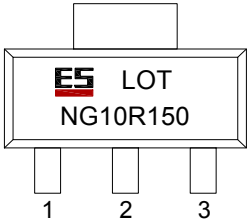
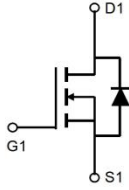
- PWM applications
- Load switch
- Power management in portable/desktop PCs
- DC/DC conversion

100% UIS TESTED

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
DMN10H220LE-13-ES	SOT-223	NG10R150/lot	Halogen free	Tape & Reel	1,000 PCS	UL 94V-0	13 inches

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
1	Gate		
3	Source		
2	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	I_D	$T_A=25^\circ C$	4
		$T_A=100^\circ C$	2.3
Maximum Power Dissipation	P_D	3.1	W
Pulsed Drain Current	I_{DM}	16	A
Avalanche Current, Single Pulsed ^a	I_{AS}	9	A
Avalanche Energy, Single Pulsed ^a	E_{AS}	12	mJ
Operating Junction Temperature	T_J	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-Ambient Thermal Resistance	$R_{\theta JA}$		40	°C/W

Note:

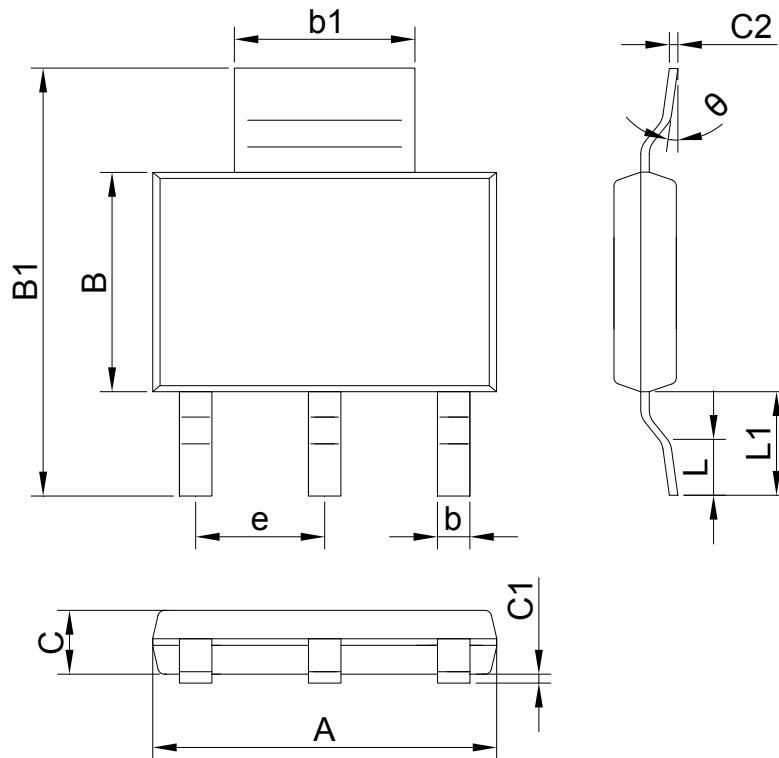
a: EAS condition: $T_J=25^\circ C, V_{DD}=100V, V_G=10V, L=0.3mH, R_g=25\Omega$

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}	$V_{GS}=0V, I_D=250\mu A$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.7	2.5	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=4A$		125	150	m Ω
		$V_{GS}=4.5V, I_D=3A$		135	180	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS}=0V, f=1MHz,$ $V_{DS}=25V$		650		pF
Output Capacitance	C_{OSS}			30		
Reverse Transfer Capacitance	C_{RSS}			25		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=4A$			1.5	V

7. Dimension (SOT-223)



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER					
SYMBOL	MIN	MAX	SYMBOL	MIN	MAX
A	6.40	6.60	C	1.45	1.65
e	2.286 BSC		C1	0.03	0.15
b	0.66	0.76	C2	0.20	0.35
b1	2.95	3.05	L	0.76	1.16
B	3.40	3.60	L1	1.70	1.80
B1	6.85	7.15	θ	0°	8°

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