SuperMOS – SOT-223 60V BV_{DSS}, 23mΩ $R_{DS(ON)}$, N-channel MOSFET

1. Description

The DMP6023LE-13(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 DMP6023LE-13(ES) is Pb-free.

2. Features

- 60V, $R_{DS(ON)}$=23mΩ(TYP.) @V_{GS}=10V
  $R_{DS(ON)}$=26mΩ(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

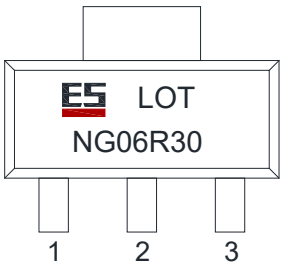
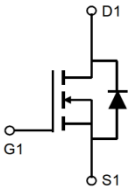
100% UIS TESTED

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
DMP6023LE-13(ES)	SOT-223	NG06R30/lot	Halogen free	Tape & Reel	2,500 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}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	6.5	A
	T_A=100°C		3.9	
Maximum Power Dissipation		P_D	2.2	W
Pulsed Drain Current		I_{DM}	26	A
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-Ambient Thermal Resistance	$R_{\theta JA}$		57	°C/W

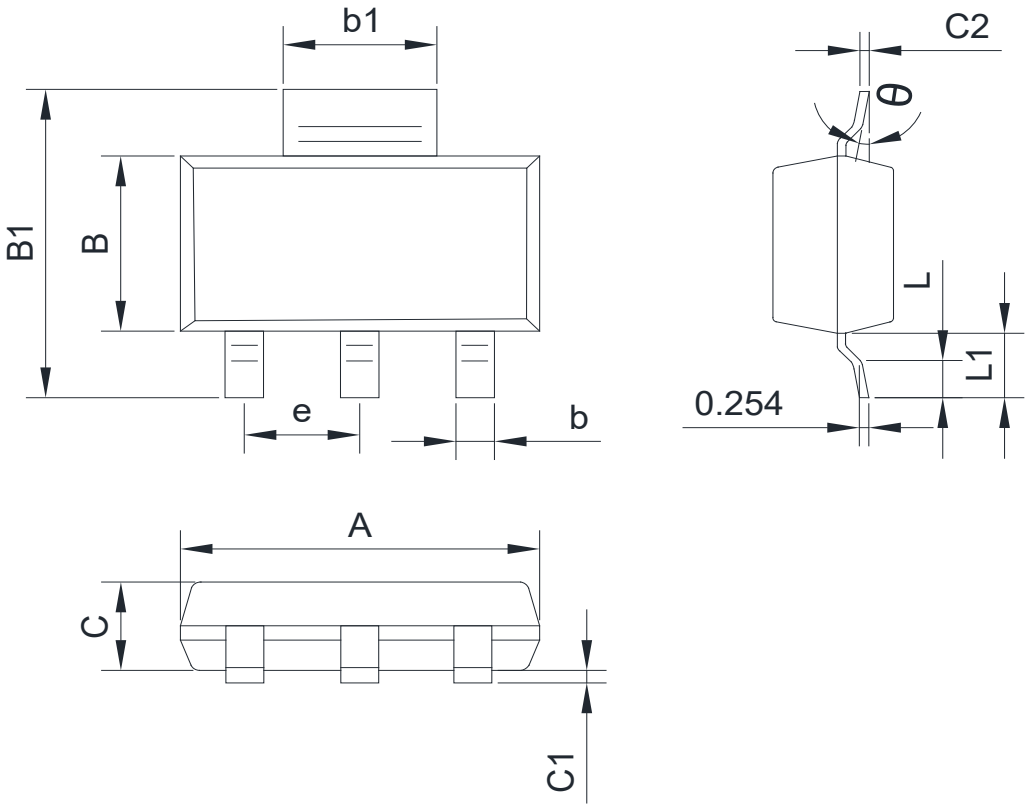
Electrical Characteristics

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	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, 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	1.2	1.6	2.3	V
Drain-to-source On-resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=3A		23	30	mΩ
		V_{GS}=4.5V, I_D=2A		26	34	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS}=0V, f=1MHz, V_{DS}=25V		1035		pF
Output Capacitance	C_{OSS}			65		
Reverse Transfer Capacitance	C_{RSS}			60		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS}=0 to 10V, V_{DS}=30V, I_D=5A		25		nC
Gate-to-Source Charge	Q_{GS}			4.5		
Gate-to-Drain Charge	Q_{GD}			6.5		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{d(ON)}$	V_{GS}=10V, V_{DD}=30V, I_D=20A, R_G=3Ω		7		ns
Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(OFF)}$			16		
Fall Time	t_f			23		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS}=0V, I_S=5A			1.2	V

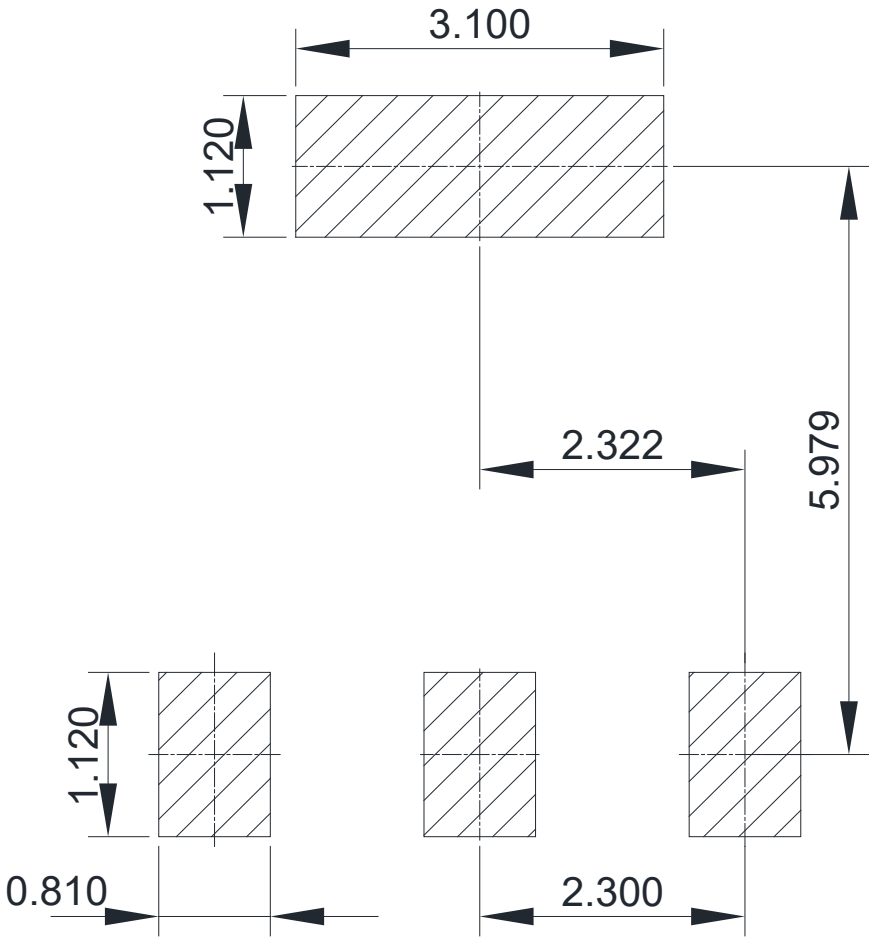
7. Dimension (SOT-223)

POD(Q)



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°

8. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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