

1. Description

The DMN3061SVT-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 DMN3061SVT-13(ES) is Pb-free.

2. Features

- 30V, $R_{DS(ON)}=29m\Omega(TYP.) @V_{GS}=10V$
 $R_{DS(ON)}=45m\Omega(TYP.) @V_{GS}=4.5V$
- 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

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
DMN3061SVT-13(ES)	SOT23-6L	.DND03 R40	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
1	Gate1		
5	Source1		
6	Drain1		
3	Gate2		
2	Source2		
4	Drain2		

Table-2 Pin configuration

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}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A=25^{\circ}\text{C}$	I_D	3.9	A
	$T_A=100^{\circ}\text{C}$		2.5	A
Maximum Power Dissipation		P_D	1.0	W
Pulsed Drain Current		I_{DM}	15.9	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	$R_{\theta JA}$		116	°C/W

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	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, 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	1.1	1.6	2.2	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =10V, I _D =1.5A		29	40	mΩ
		V _{GS} =4.5V, I _D =1A		45	65	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} =0V, f=1MHz, V _{DS} =15V		170		pF
Output Capacitance	C _{OSS}			35		
Reverse Transfer Capacitance	C _{RSS}			25		
Total Gate Charge	Q _{G(TOT)}	V _{GS} =10V, V _{DS} =15V, I _D =3.6A		4.1		nC
Gate-to-Source Charge	Q _{GS}			0.6		
Gate-to-Drain Charge	Q _{GD}			1		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =15V, R _L =2.2Ω, R _G =3Ω		4.5		ns
Rise Time	t _r			1.5		
Turn-Off Delay Time	t _{d(OFF)}			18.5		
Fall Time	t _f			15.5		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} =0V, I _S =3.6A			1.5	V

7. Typical Characteristic

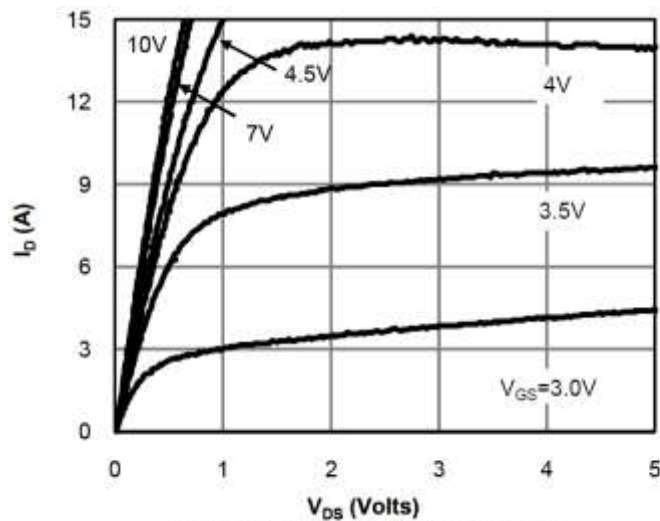


Figure 1: On-Region Characteristics

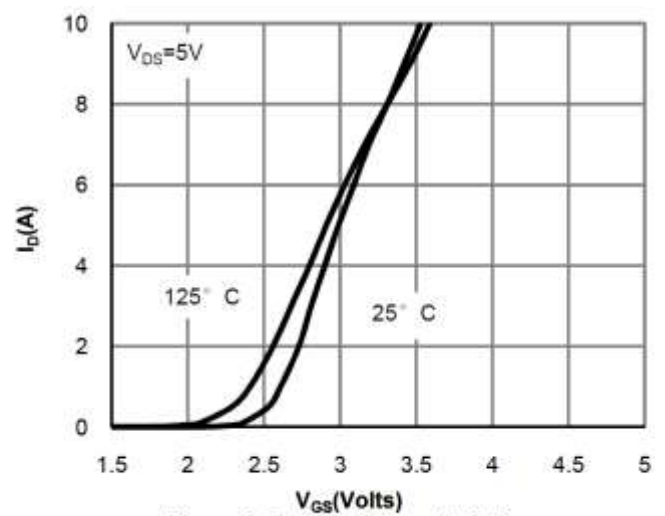


Figure 2: Transfer Characteristics

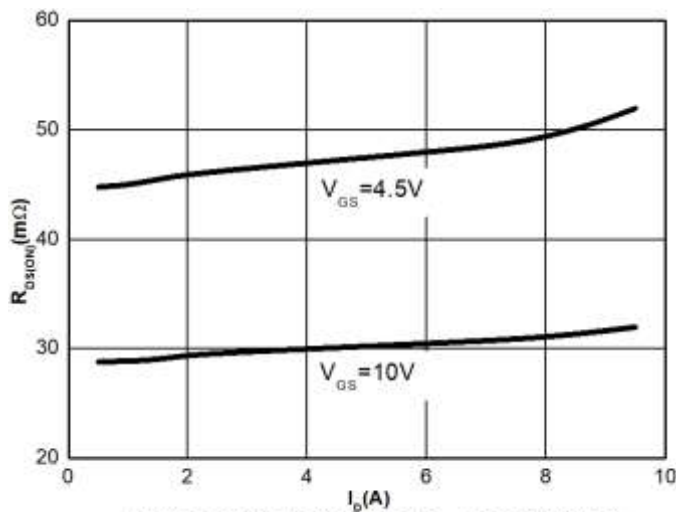


Figure 3: On-resistance vs. Drain Current

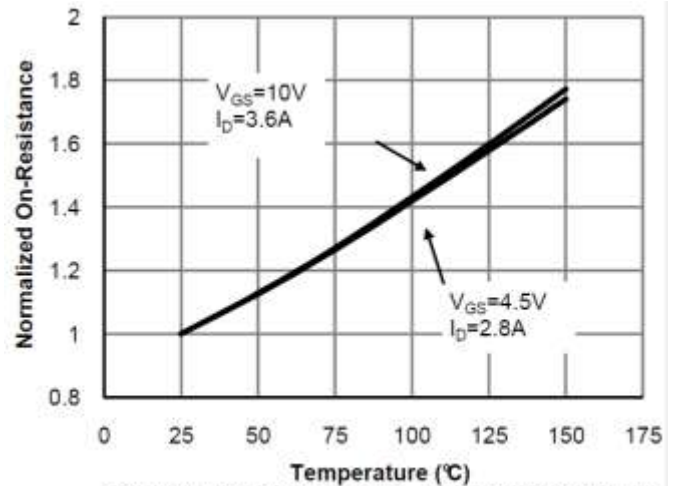


Figure 4: On-Resistance vs. Junction Temperature

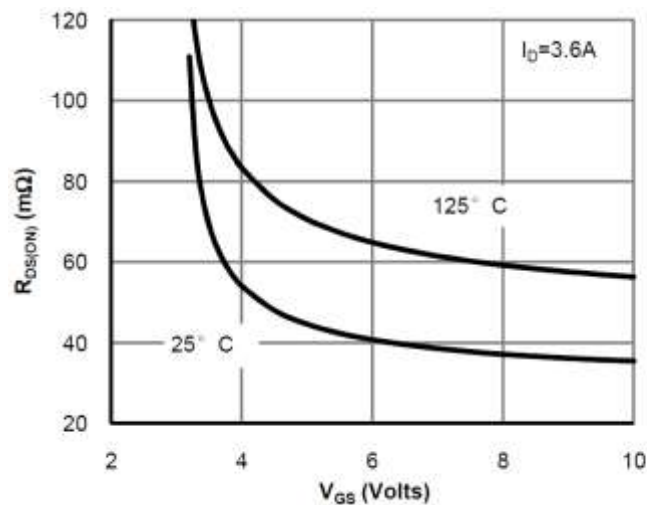


Figure 5: On-Resistance vs. Gate-Source Voltage

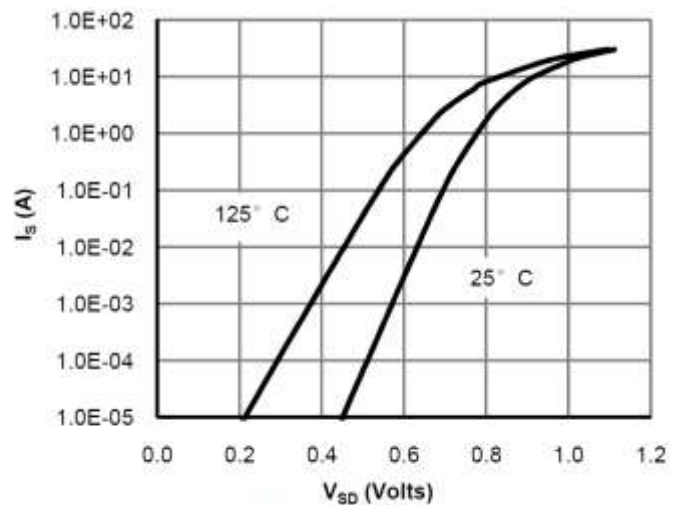
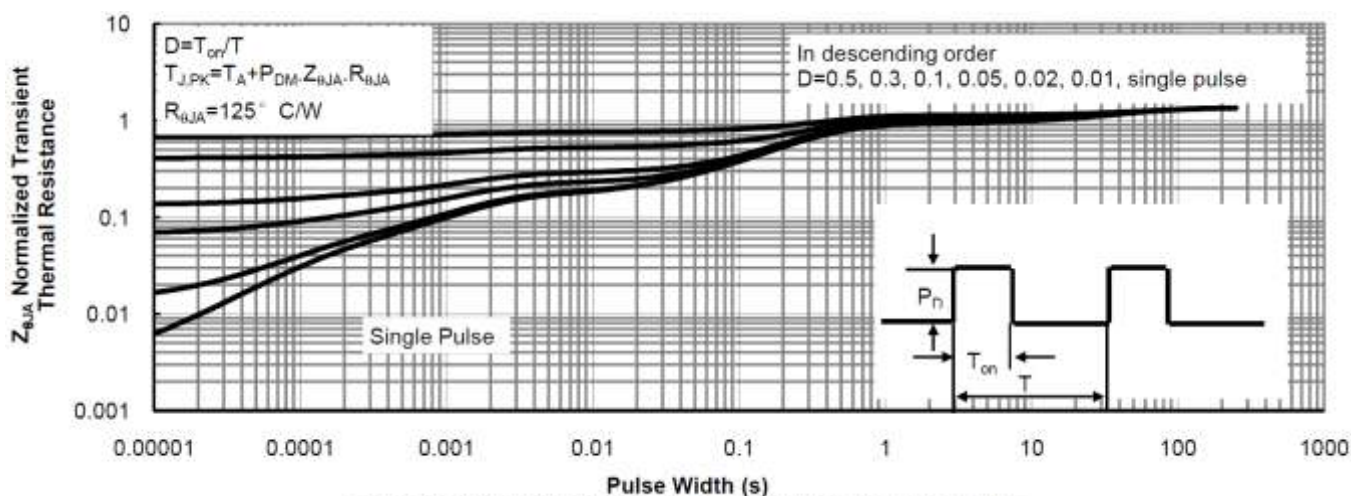
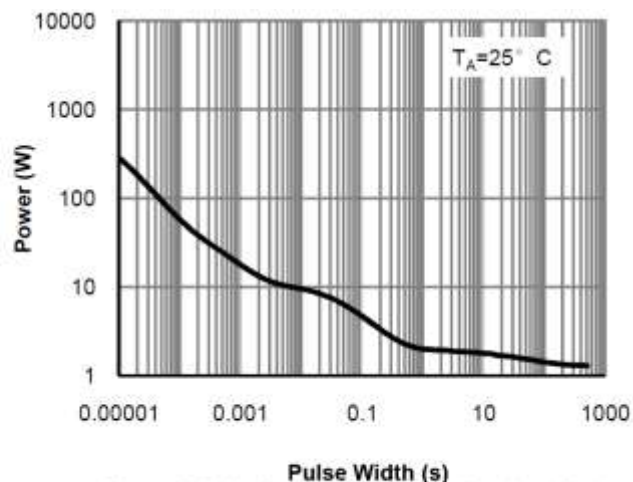
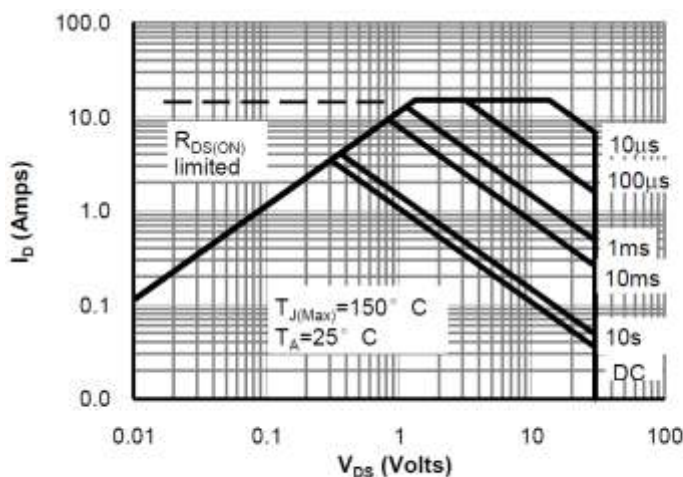
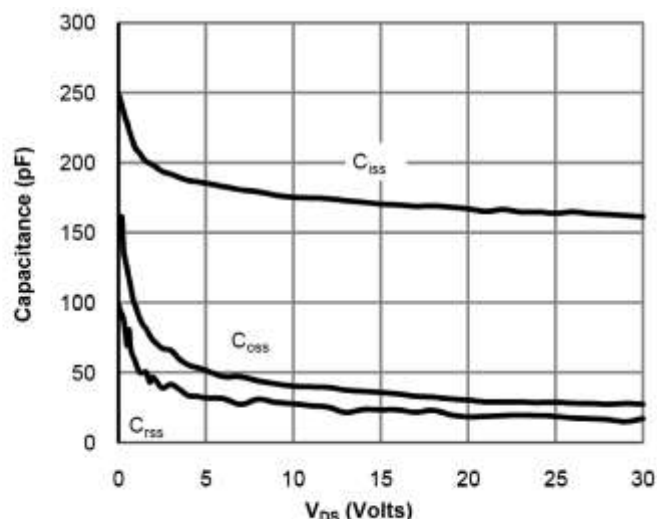
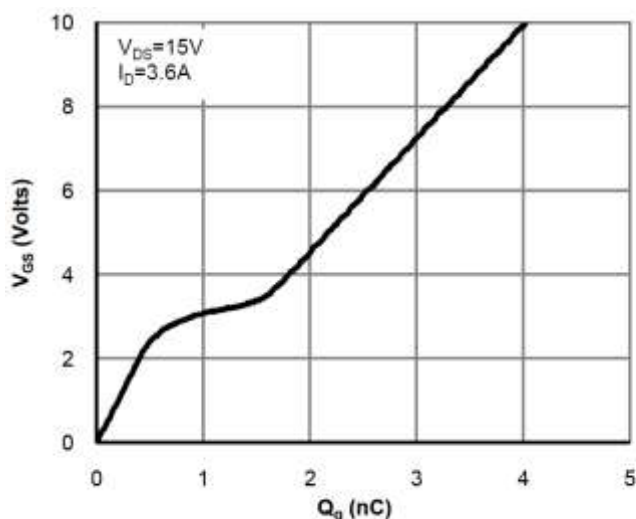
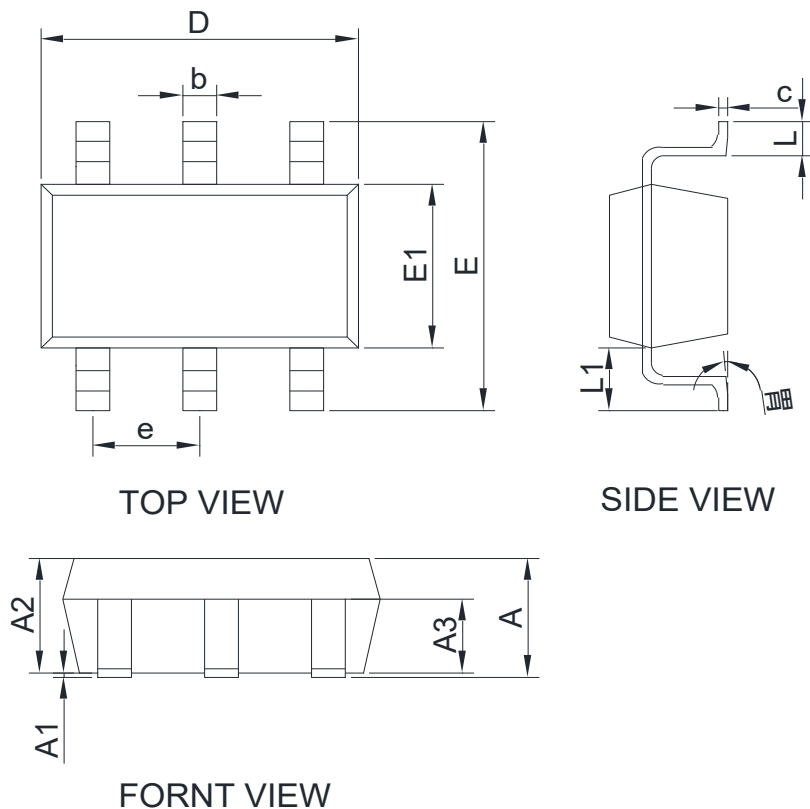


Figure 6: Body-Diode Characteristics



8. Dimension (SOT23-6L)

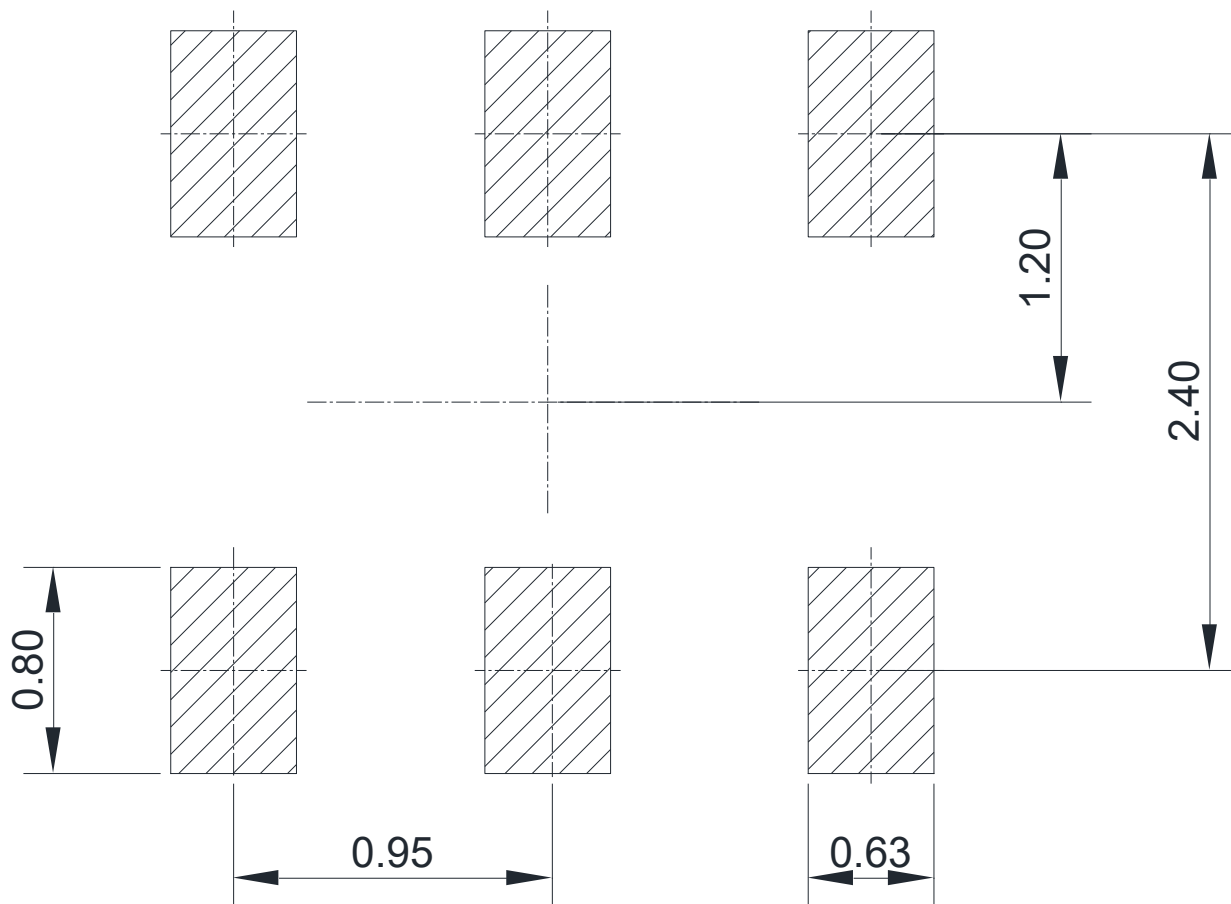
POD(Z)



Unit: mm

Symbol		A	A1	A2	A3	b	c	D
Spec	Min	1.000	0.000	1.000	0.500	0.300	0.100	2.700
	Max	1.300	0.110	1.200	0.800	0.500	0.250	3.100
Symbol		E	E1	e	L	L1	θ	
Spec	Min	2.600	1.500	0.850	0.300	0.550	0°	
	Max	3.000	1.800	1.050	0.600	0.700	8°	

9. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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