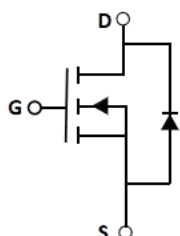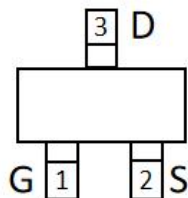## 1. General Description
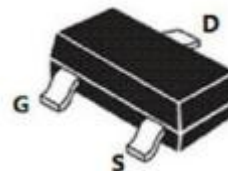
TheMN30T26MRuses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 0.7V. This device is suitable for use as aload switch or in PWM applications.

Schematic Diagram

Pin Assignment

SOT-23 top view

2. Specification Features

- V_{DS} = 30V, I_D =6A
- $R_{DS(ON)}$ < 30 mΩ @ V_{GS} =4.5V (Type:25 mΩ)
- $R_{DS(ON)}$ < 38 mΩ @ V_{GS}=2.5V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

3. Application

- PWM applications
- Load switch
- Power managemen

4. Absolute Maximum Ratings (T$_J$ =25℃)

Characteristics		Symbol	Rating	Unit
DrainSource Voltage		V_{DSS}	30	V
GateSource Voltage		V_{GSS}	±12	V
Continuous Drain Current(1)	Tc=25℃(silicon limited)	I_D	6	A
	Tc=25℃(package limited)		5.5	
	Tc=100℃(silicon limited)		3.2	
Pulsed Drain Current(2)		I_{DM}	30	
Power Dissipation	Tc=25℃	P_D	1	W
	Tc=100℃		0.7	
Single Pulse Avalanche Energy(3)		EAS		mJ
Junction and Storage Temperature Range		TJ,Tstg	55~175	℃

5. Thermal resistance ratings

| Parameter	Symbol	Value	Units
Junction-to-Ambient Thermal Resistance [a]	$R_{\theta JA}$	125	°C/W
Junction-to-Ambient Thermal Resistance [b]	$R_{\theta JC}$		°C/W

6. Electrical Characteristics (TJ =25℃)

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA，V_{GS}=0V	30	33		V
V_{GS}(th)	Gate Threshold Voltage	$V_{DS}=V_{GS}$, I_D=250μA	0.5	0.7	1.1	V
I_{DSS}	Drain CutOff Current	V_{DS}=30V, V_{GS}=0V			1	μA
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V			±0.1	μA
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=4.5V, I_D=5A		25	30	mΩ
		V_{GS}=2.5V ,I_D=5A		35	38	
gFS	Forward Transconductance	V_{DS}=10V, I_D=6A		10		S
Dynamic Characteristics						
Qg	Total Gate Charge	V_{DS}=10V, I_D=6A, V_{GS}=10V		4		nc
Qgs	Gate Source Charge			0.8		nc
Qgd	Gate Drain Charge			1.3		nc
Ciss	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1.0MHz		480		pF
Crss	Reverse Transfer Capacitance			55		pF
Coss	Output Capacitance			90		pF
tD(on)	Turn-On Delay Time	V_{GS}=10V, V_{DS}=10V, R_L=2.8Ω, R_G=6Ω		10		ns
tr	Rise Time			51		ns
tD(off)	Turn-Off Delay Time			16		ns
tf	Fall Time			10		ns
Rg	Gate Resistance	f=1MHz				Ω
Drain-Source Body Diode Characteristics						
V_{SD}	SourceDrain Diode Forward Voltage	I_S=6A,V_{GS}=0V		0.9	1.2	V
trr	Body Diode Reverse Recovery Time	I_F=6A, dI/dt=100A/μS		-		ns
Qrr	Body Diode Reverse Recovery Charge			-		nc

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

7. Typical Electrical and Thermal Characteristics （Curves）
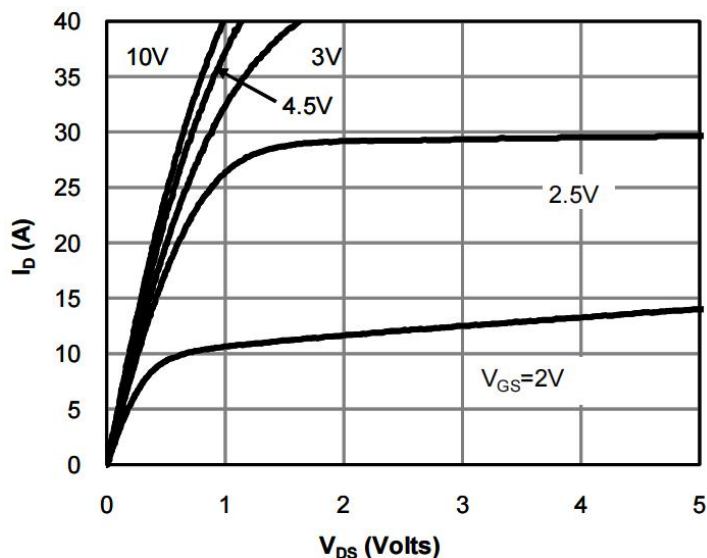
Fig 1: On-Region Characteristics
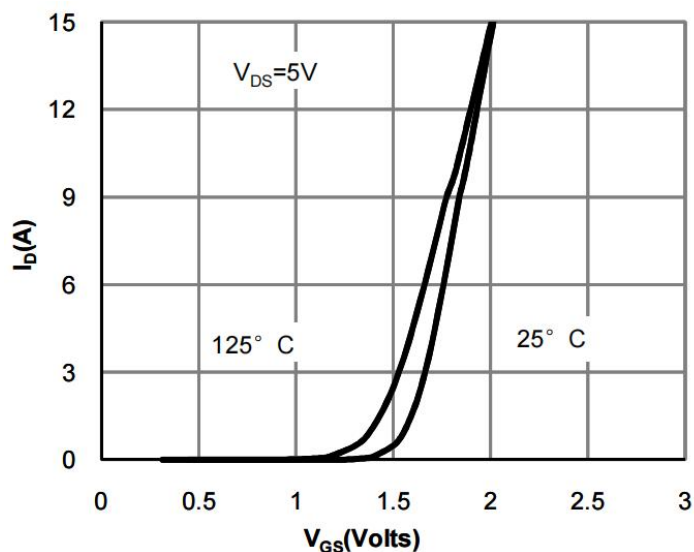
Figure 2: Transfer Characteristics
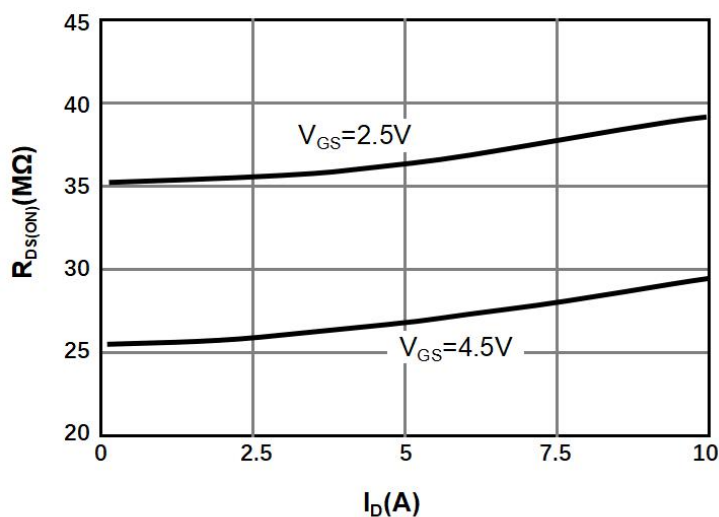
Figure 3: On-Resistance vs. Drain Current and Gate
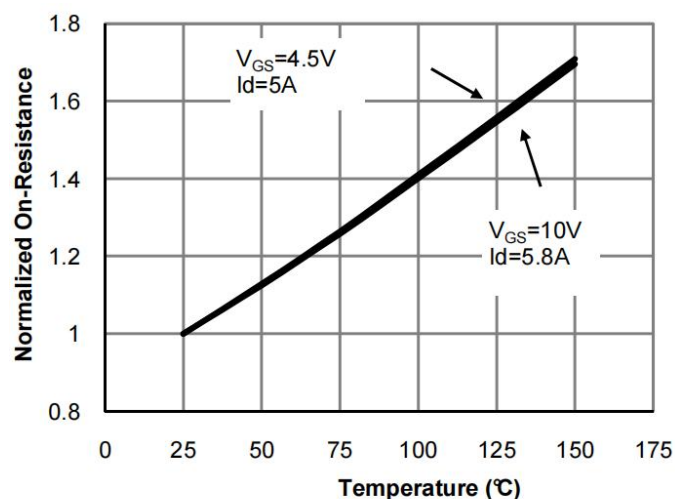
Figure 4: On-Resistance vs. Junction Temperature
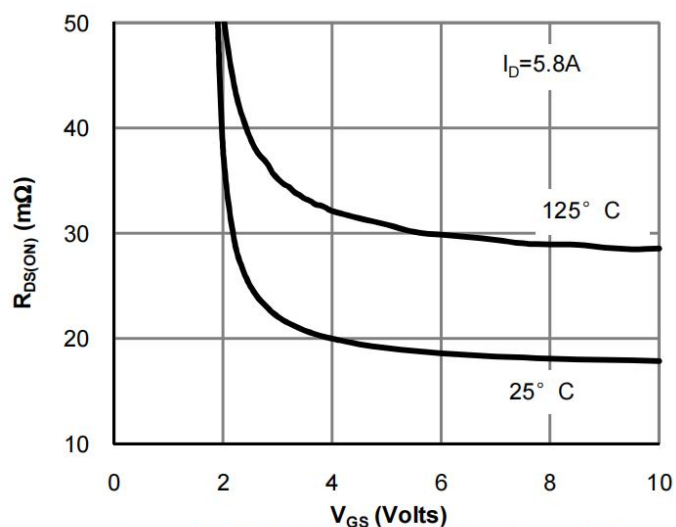
Figure 5: On-Resistance vs. Gate-Source Voltage
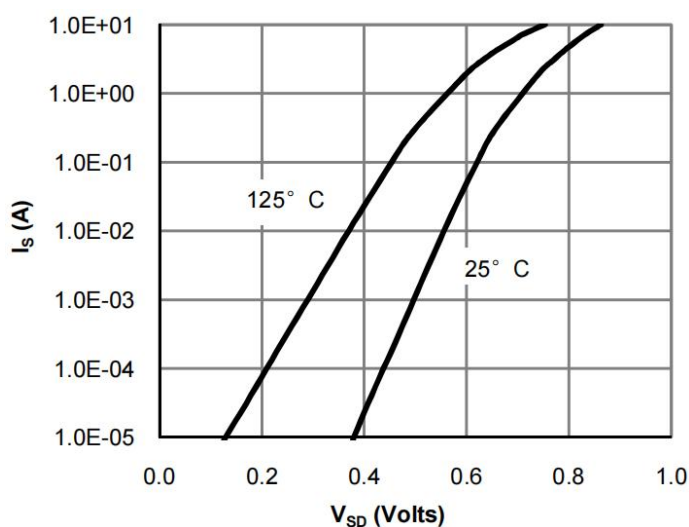
Figure 6: Body-Diode Characteristics

8. Package Outline Dimensions

Device Marking	Device	Package	Reel size	Tape width	Quantity
N3026	MN30T26MR	SOT-23	7inch	8mm	3000
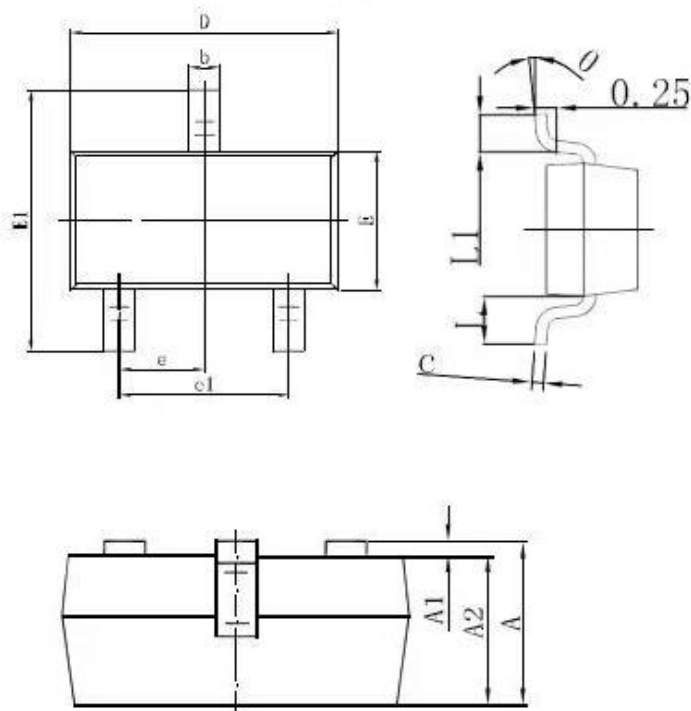
SOT-23 POD UNIT:mm		
Symbol	Min	Max
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.950TYP	
e1	1.80	2.00
L	0.550REF	
L1	0.30	0.50
θ	0°	8°

9. RICTIONS ON PRODUCT USE

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