

N-Channel Enhancement Mode MOSFET

Features

- 30V/5.8A
- $R_{DS(ON)}=18m\Omega$ (typ) @VGS=10V
 $R_{DS(ON)}=20m\Omega$ (typ) @VGS=4.5V
- 100% UIS & RG Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

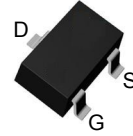
Applications

- Power Management for Industrial DC/DC Converters

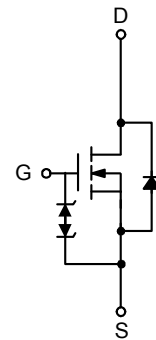
Marking

Marking	Y4****
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Pin Description



Top View of SOT23-3L



N-Channel MOSFET

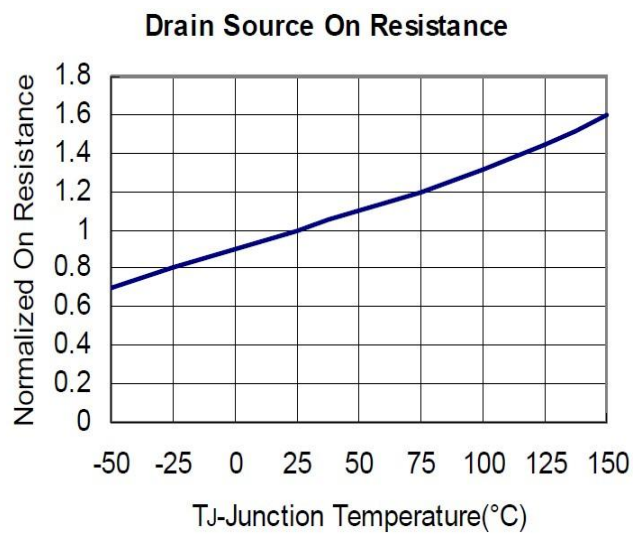
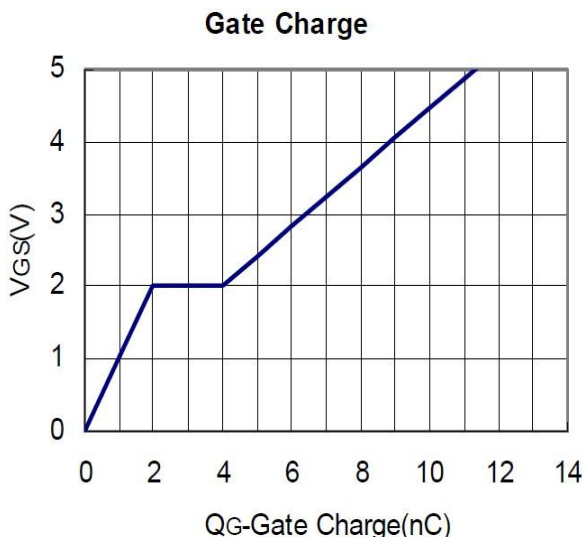
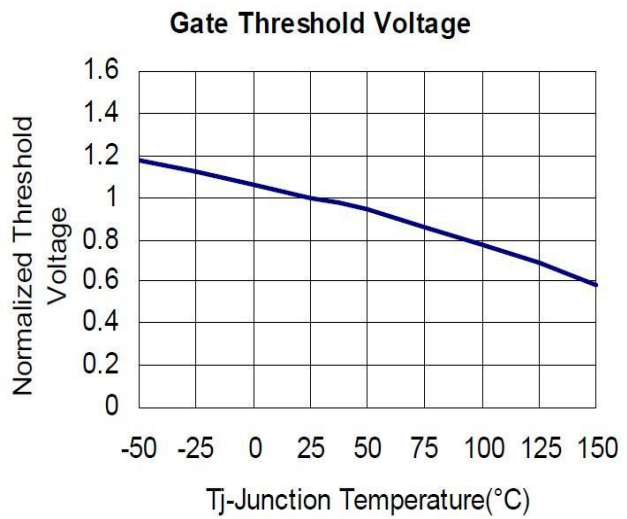
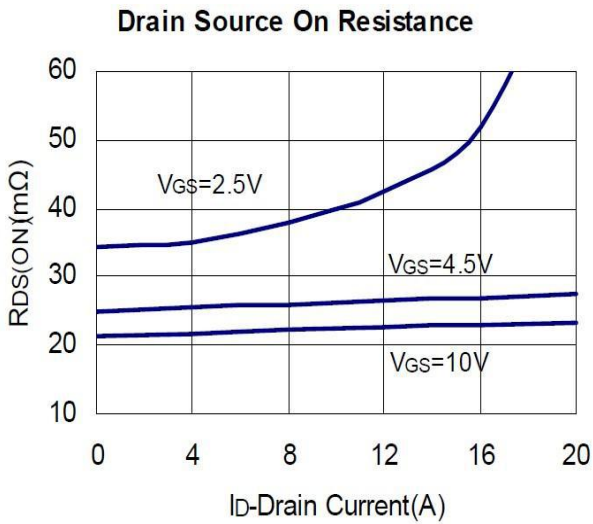
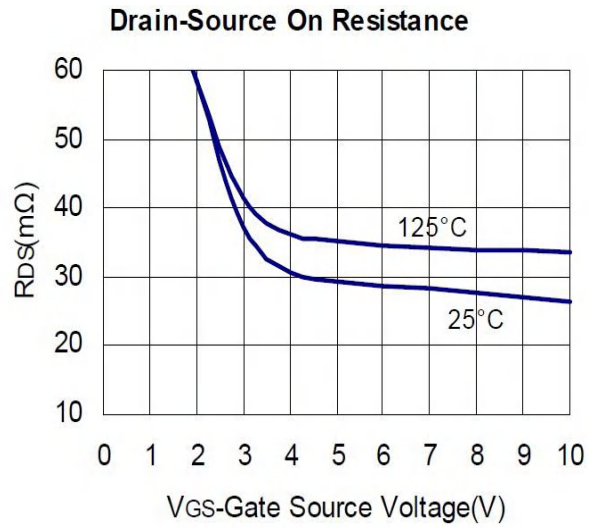
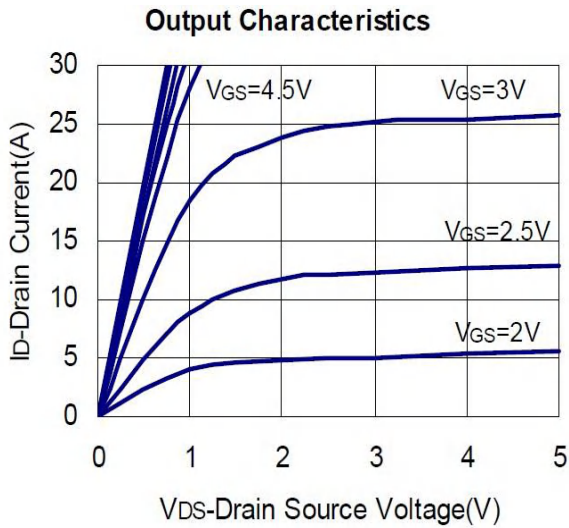
Absolute Maximum Ratings (T_A= 25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit	
Common Ratings				
V _{DSS}	Drain-Source Voltage	30	V	
V _{GSS}	Gate-Source Voltage	±12		
I _D	Continuous Drain Current	T _J =150°C	A	
I _{DM}	Pulsed Drain Current	25		
I _S	Diode Continuous Forward Current	1.7	A	
T _{STG} , T _J	Storage Temperature Range	-55 to 150	°C	
P _D	Power Dissipation	T _C =25°C	1.25	W
		T _C =70°C	0.8	
R _{θJA}	Thermal Resistance-Junction to Ambient	90		

Electrical Characteristics (T_A = 25°C unless otherwise noted)

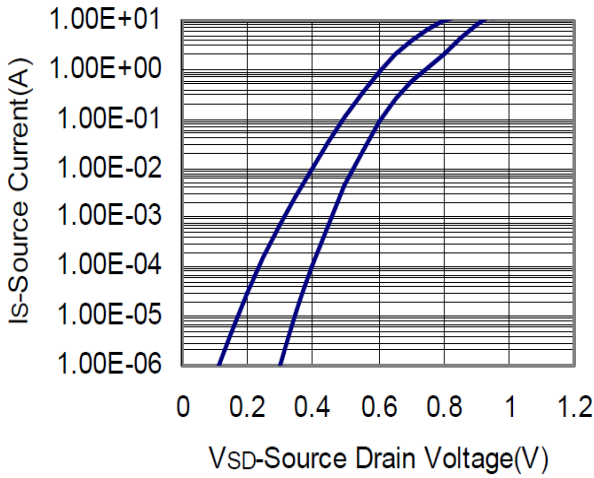
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V	-	-	1	μA
		T _J =55°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	-	1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)}	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =5.7A	-	18	26	mΩ
		V _{GS} =4.5V, I _{DS} =5A	-	20	32	
		V _{GS} =2.5V, I _{DS} =3.2A	-	24	46	
Body Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} =1A, V _{GS} =0V	-	0.7	1.0	V
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	416	-	pF
C _{oss}	Output Capacitance		-	62	-	
C _{rss}	Reverse transfer capacitance		-	40	-	
t _{d(ON)}	Turn-on delay Time	V _{GS} =10V, V _{DS} =15V R _G =6Ω, I _D =1A, RL=10Ω	-	7	15	nS
t _r	Turn-on rise Time		-	10	20	
t _{d(OFF)}	Turn-off delay Time		-	20	40	
t _f	Turn-off rise Time		-	11	20	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =5.6A	-	10	19	nC
Q _{gs}	Gate-Source Charge		-	1.7	-	
Q _{gd}	Gate-Drain Charge		-	3.2	-	

■ **TYPICAL CHARACTERISTICS** (25 °C Unless Note)

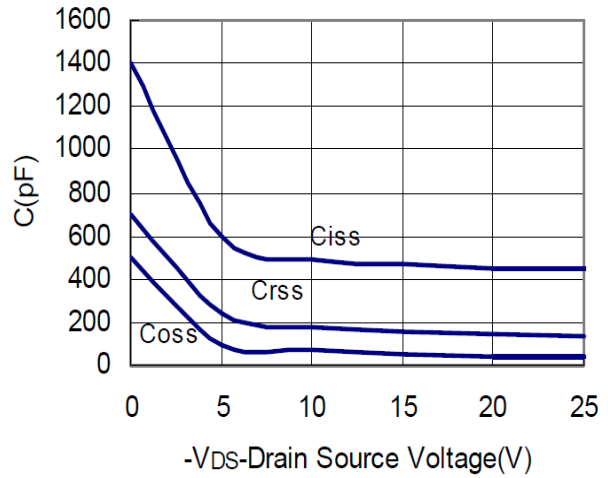


■ **TYPICAL CHARACTERISTICS** (continuous)

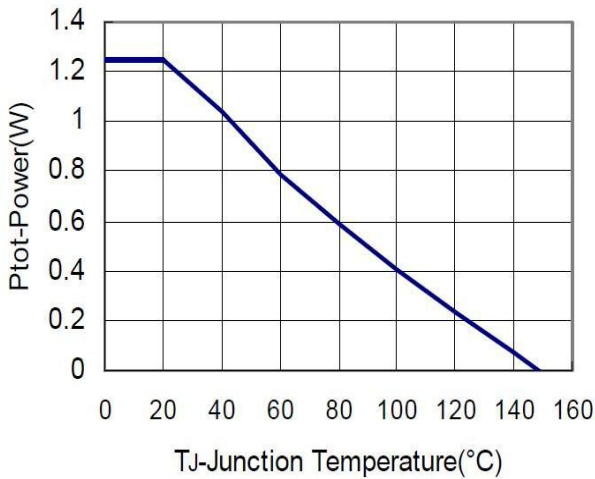
Source Drain Diode Forward



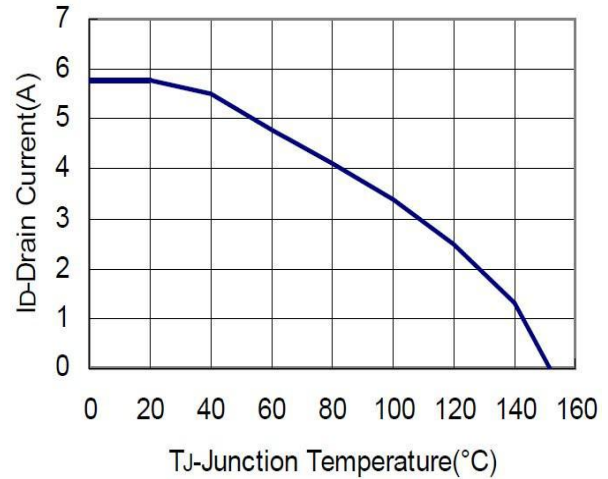
Capacitance



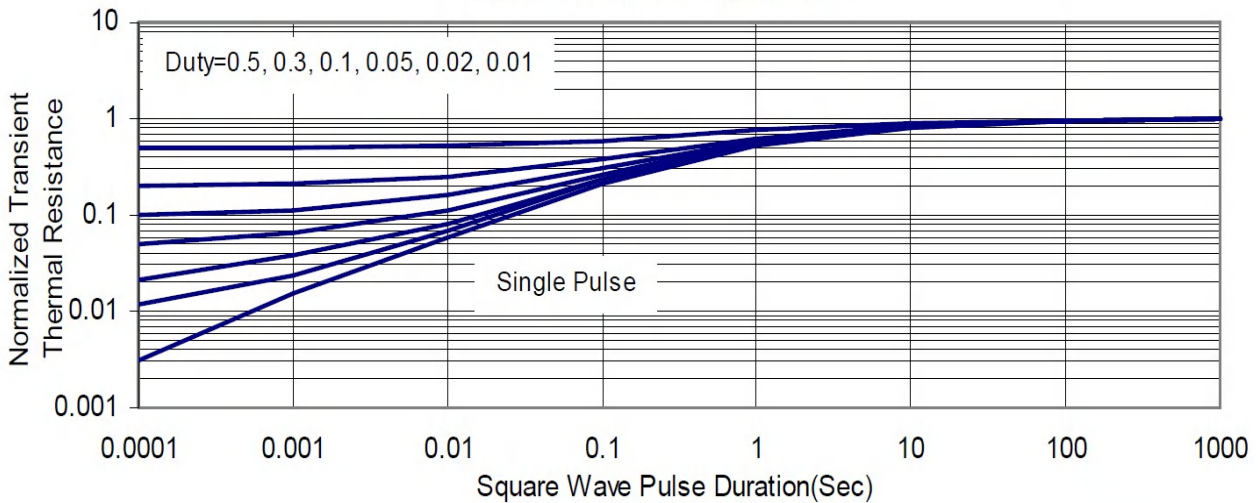
Power Dissipation



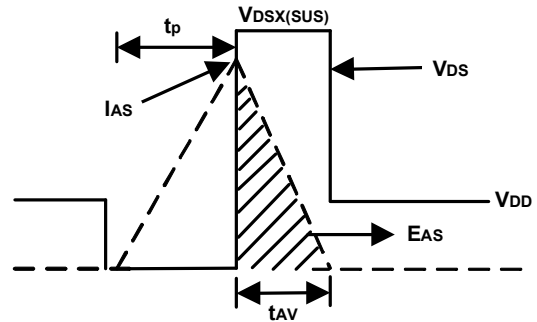
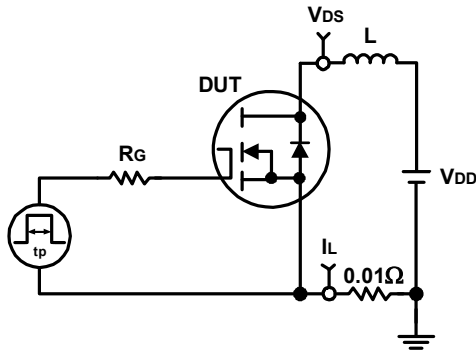
Drain Current



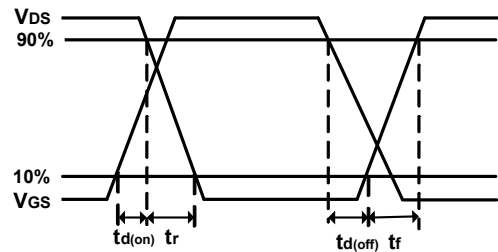
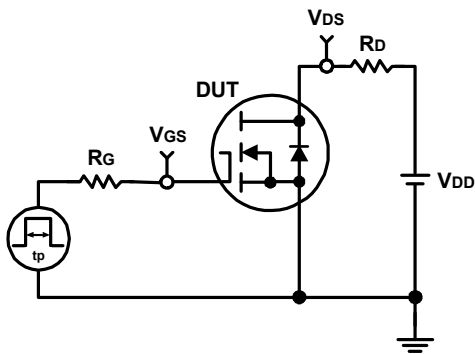
Thermal Transient Impedance



Avalanche Test Circuit and Waveforms

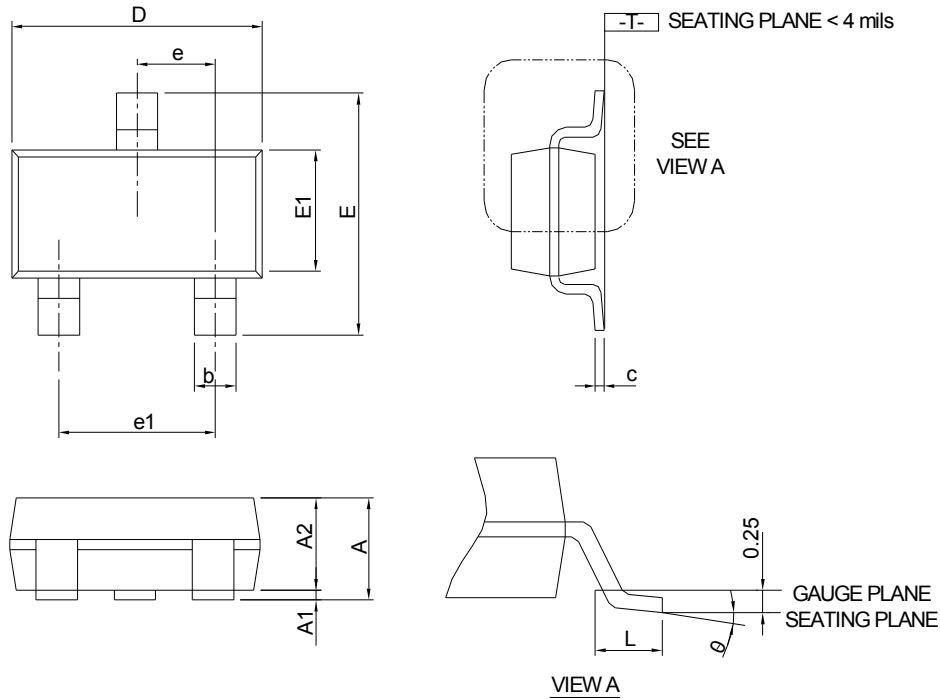


Switching Time Test Circuit and Waveforms



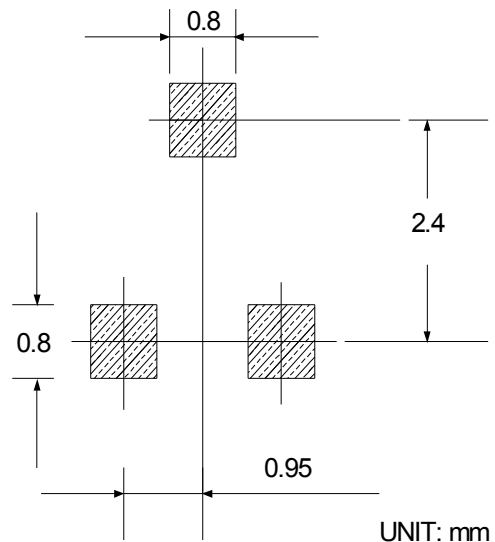
Package Information

SOT23-3L



SYMBOL	SOT 23-3L			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A		1.20		0.047
A1	0.00	0.08	0.000	0.003
A2	0.90	1.12	0.035	0.044
b	0.30	0.50	0.012	0.020
c	0.08	0.22	0.003	0.009
D	2.70	3.10	0.106	0.122
E	2.60	3.00	0.102	0.118
E1	1.40	1.80	0.055	0.071
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

RECOMMENDED LAND PATTERN



Note : Dimension D and E1 do not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 10 mil per side.

Attention

- Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress rating only and functional device operation is not implied. YiDeng Wei Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all YiDeng Wei Semiconductor products described or contained herein.
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