

30V N-Channel Trench Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	20mΩ@10V	6.2A
	22mΩ@4.5V	

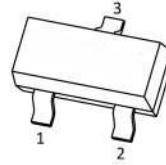
Features

- Very Low On-resistance $R_{DS(ON)}$
- Low C_{rss}
- Fast switching
- Improved dv/dt capability

Applications

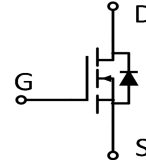
- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

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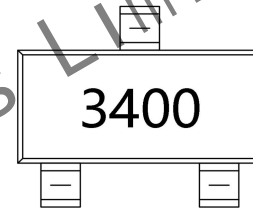


PIN1:GATE
PIN2:SOURCE
PIN3:DRAIN

Schematic diagram



Marking



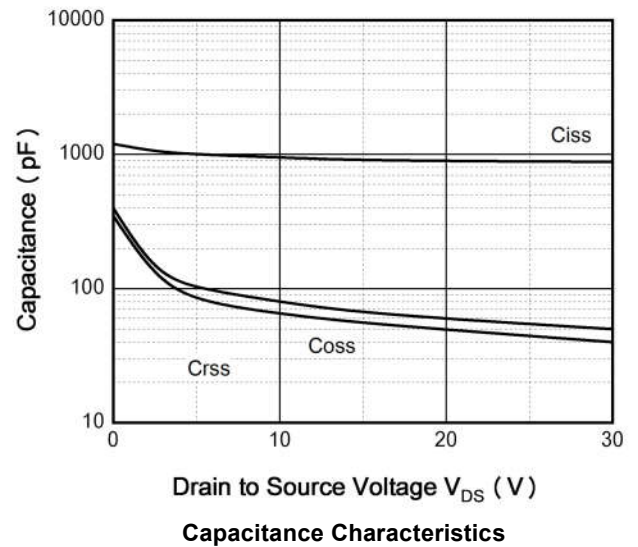
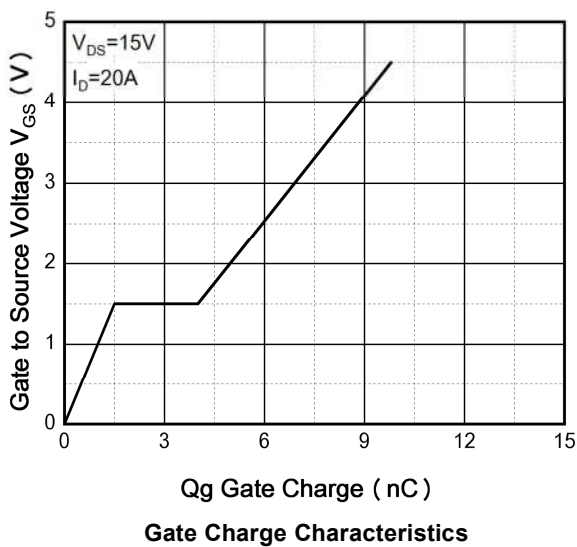
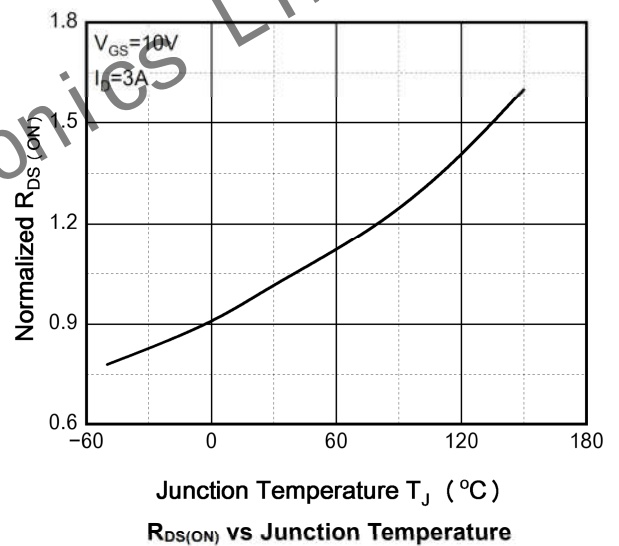
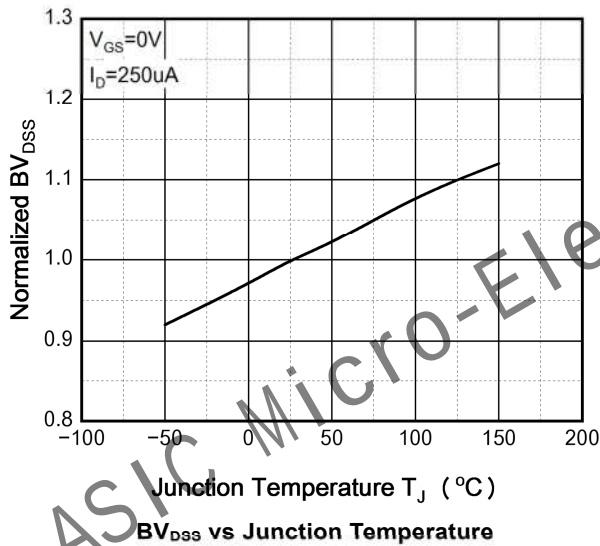
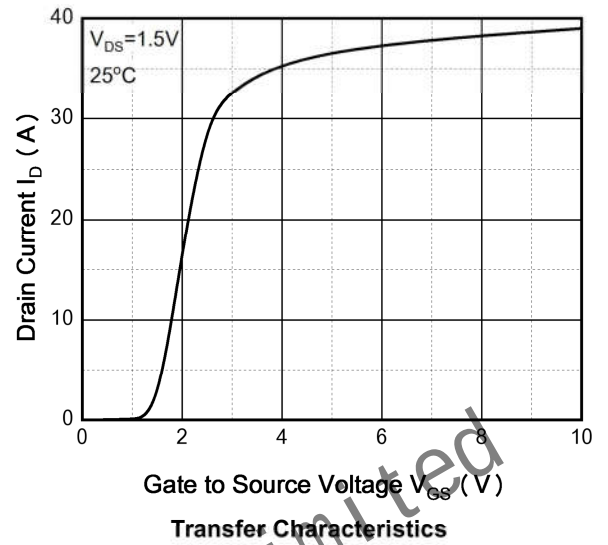
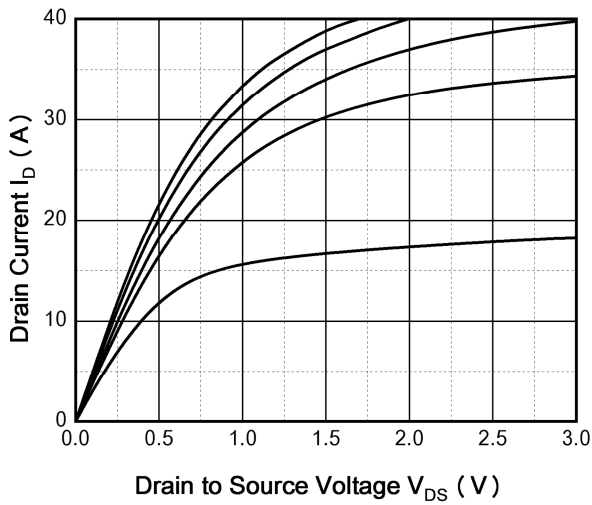
Absolute Maximum rating ($T_A = 25^\circ\text{C}$ unless otherwise noted)

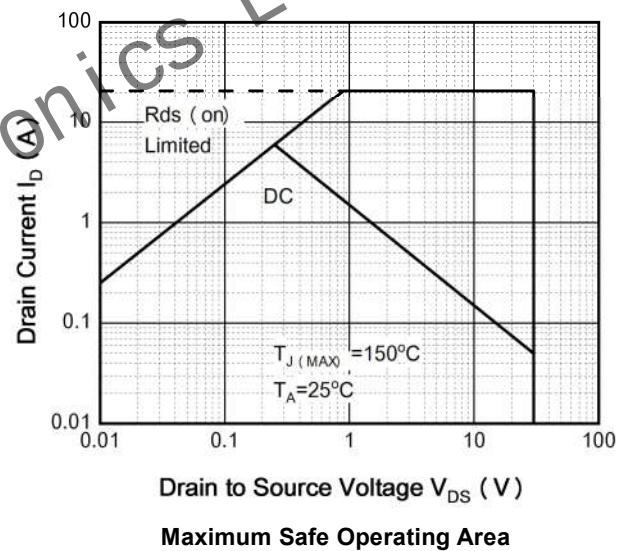
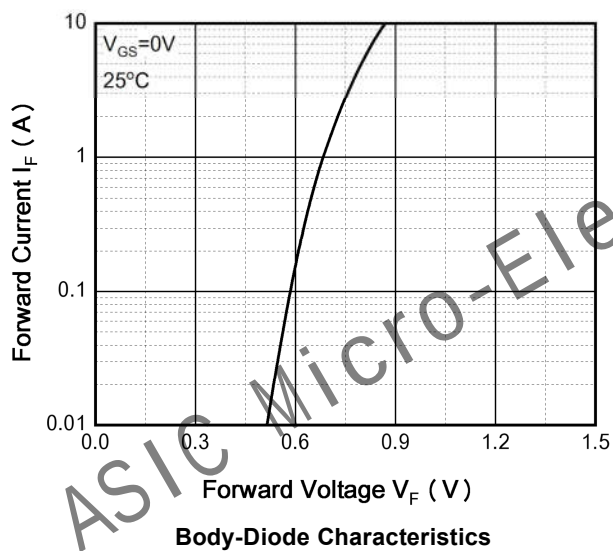
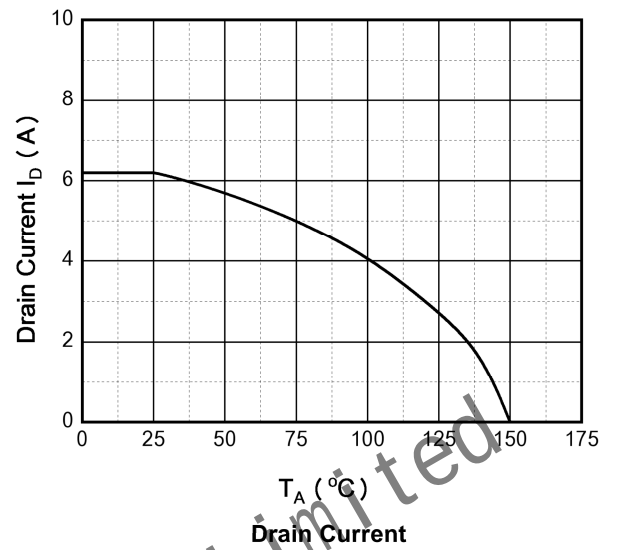
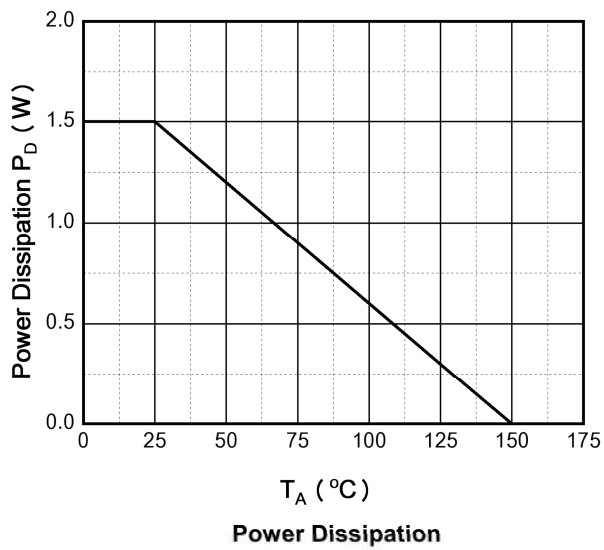
Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Drain Current	$T_A = 25^\circ\text{C}$	I_D	6.3	A
	$T_A = 100^\circ\text{C}$		3.8	A
Drain Current - Pulsed		I_{DM}	21	A
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	1.5	W
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	83	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}= 0V, I_D= 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}= 30V, V_{GS}= 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS}= \pm 12V, V_{DS}= 0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}= V_{GS}, I_D= 250\mu A$	0.6	0.9	1.4	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS}= 10V, I_D= 5.8A$		20	29	m Ω
		$V_{GS}= 4.5V, I_D= 5A$		22	32	
		$V_{GS}= 2.5V, I_D= 1A$		26	40	
Forward transconductance	g_{FS}	$V_{DS}= 5V, I_D= 1A$		5.2		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}= 15V, V_{GS}= 0V, f= 1MHz$		900		pF
Output Capacitance	C_{oss}			65		
Reverse Transfer Capacitance	C_{rss}			55		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}= 15V, V_{GS}= 4.5V, I_D= 3A$		10		nC
Gate-source Charge	Q_{gs}			1.5		
Gate-drain Charge	Q_{gd}			2.5		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}= 4.5V, V_{DS}= 15V, R_L= 5\Omega, R_{GEN}= 3\Omega$		4.5		ns
Turn-on Rise Time	t_r			18		
Turn-off Delay Time	$t_{d(off)}$			95		
Turn-off Fall Time	t_f			40		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}= 0V, I_S= 3A$			1.2	V

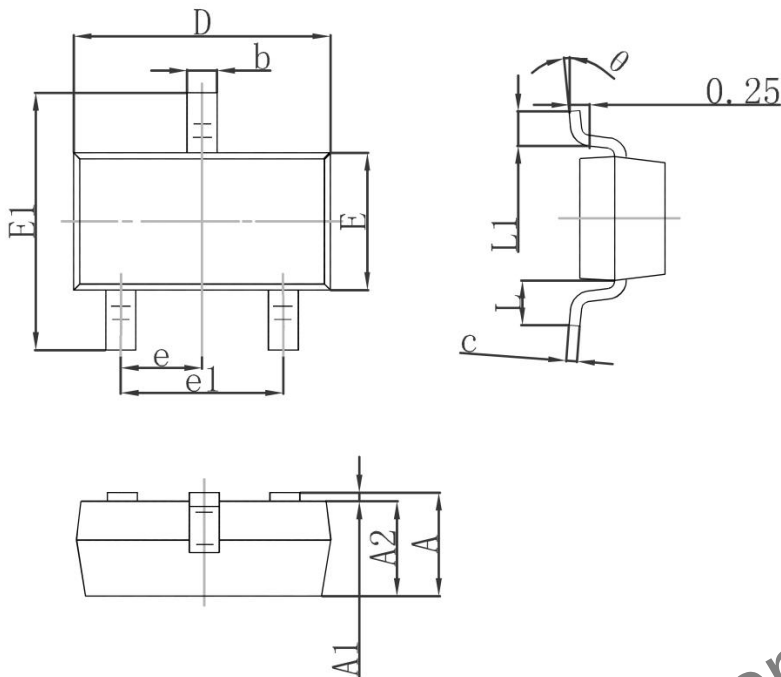
Typical Characteristic





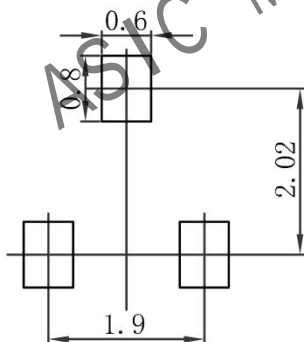
Dimension

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Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only
4. Unit: mm