

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	20mΩ@10V	7A
	26mΩ@4.5V	

Feature

- Advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge
- This is an all purpose device that is suitable for use in a wide range of power conversion applications.

Application

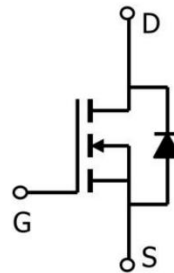
- Load switch
- Power management

Package

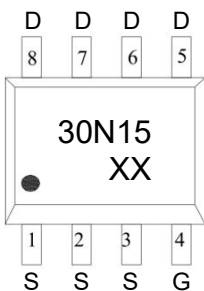


SOP-8

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹⁾	I_D	7	A
Pulsed Drain Current ²⁾	I_{DM}	28	A
Power Dissipation ³⁾	P_D	1.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	85	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}C$

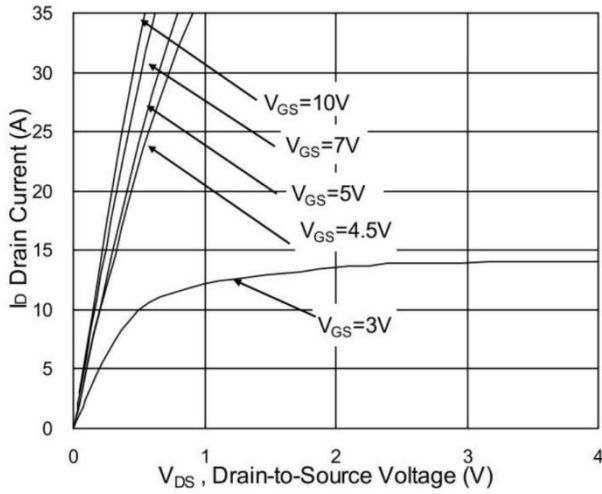
Electrical characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	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}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.5	2.2	V
Drain-source on-resistance ²⁾	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 6A$		15	20	m Ω
		$V_{GS} = 4.5V, I_D = 5A$		20	26	
Dynamic characteristics⁴⁾						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		583		pF
Output Capacitance	C_{oss}			77		
Reverse Transfer Capacitance	C_{rss}			59		
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 4.5V, I_D = 7A$		6		nC
Gate-Source Charge	Q_{gs}			2.2		
Gate-Drain Charge	Q_{gd}			2		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, I_D = 7A$ $R_G = 3.3\Omega$		1.2		nS
Turn-on rise time	t_r			40		
Turn-off delay time	$t_{d(off)}$			18		
Turn-off fall time	t_f			7.2		
Source-Drain Diode characteristics						
Diode Forward voltage ²⁾	V_{SD}	$V_{GS} = 0V, I_S = 1A, T_J = 25^{\circ}C$			1.2	V

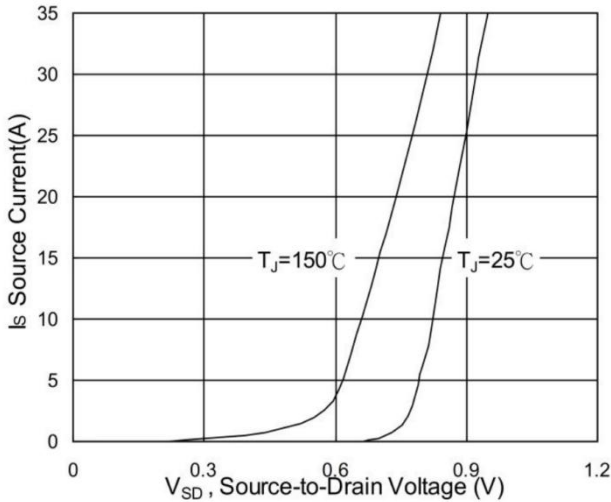
Notes:

- 1) The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
- 2) The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 3) The power dissipation is limited by 150 $^{\circ}C$ junction temperature.
- 4) Guaranteed by design, not subject to production testing.

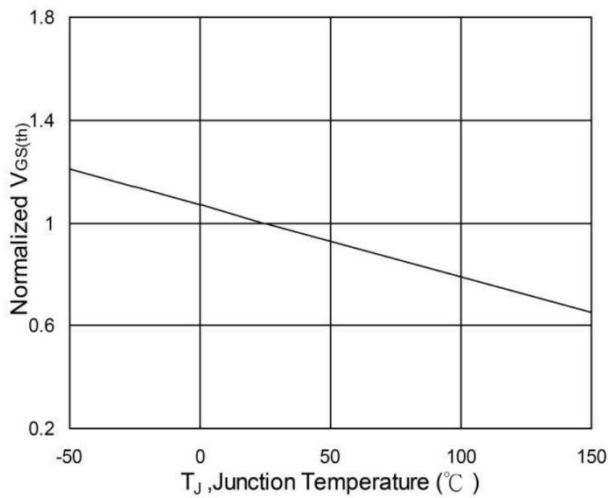
Typical Characteristics



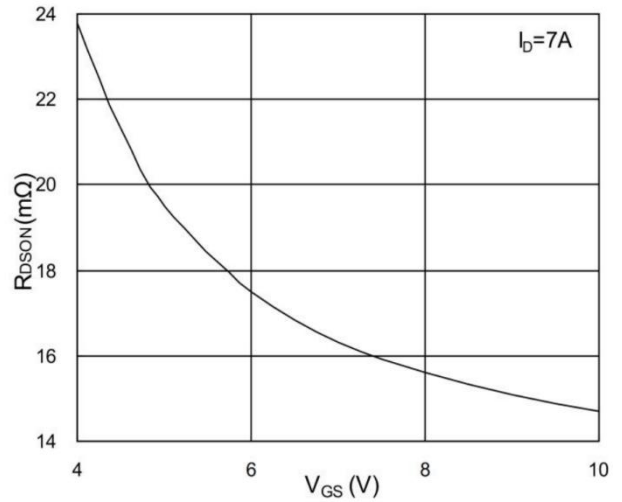
Typical Output Characteristics



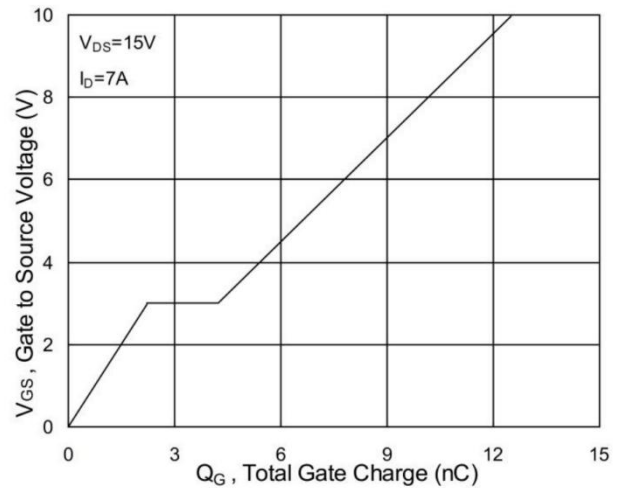
Forward Characteristics Of Reverse



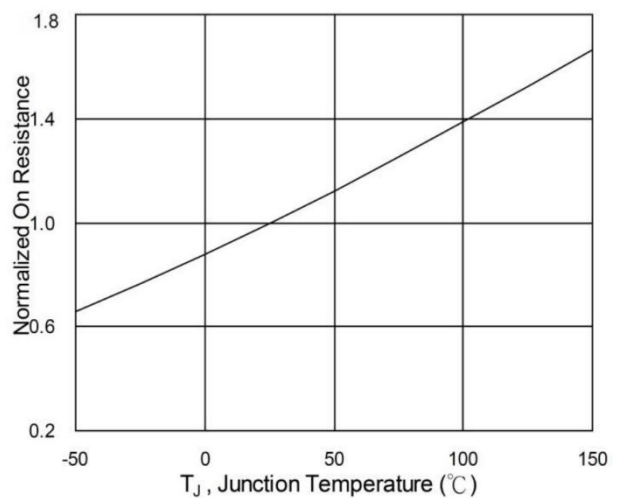
Normalized $V_{GS(th)}$ vs. T_J



On-Resistance vs. Gate-Source

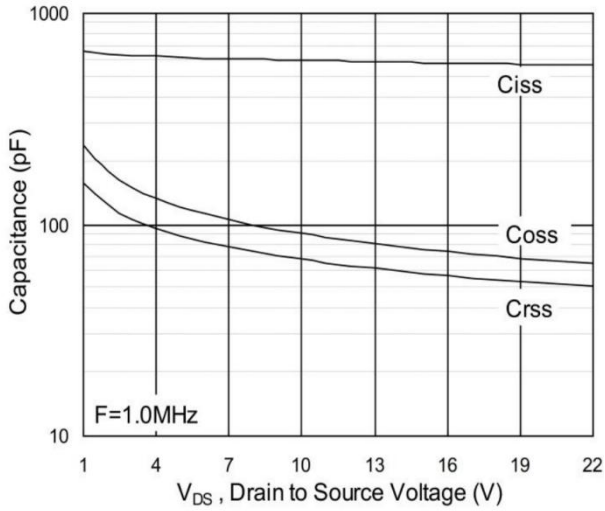


Gate-Charge Characteristics

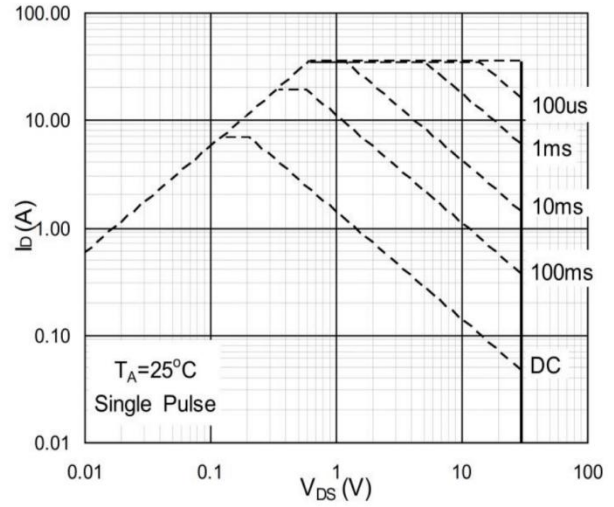


Normalized R_{DSON} vs. T_J

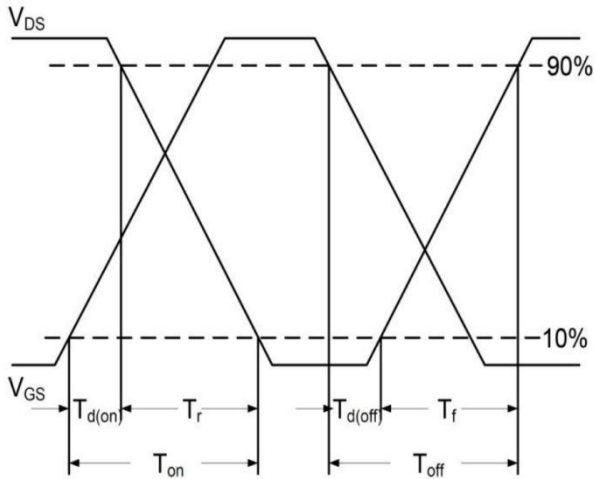
Typical Characteristics



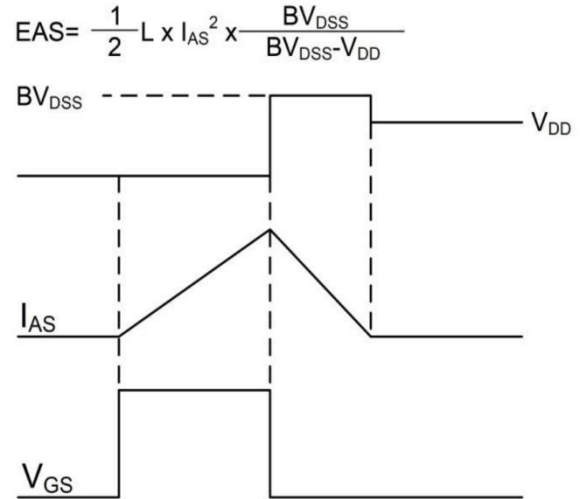
Capacitance



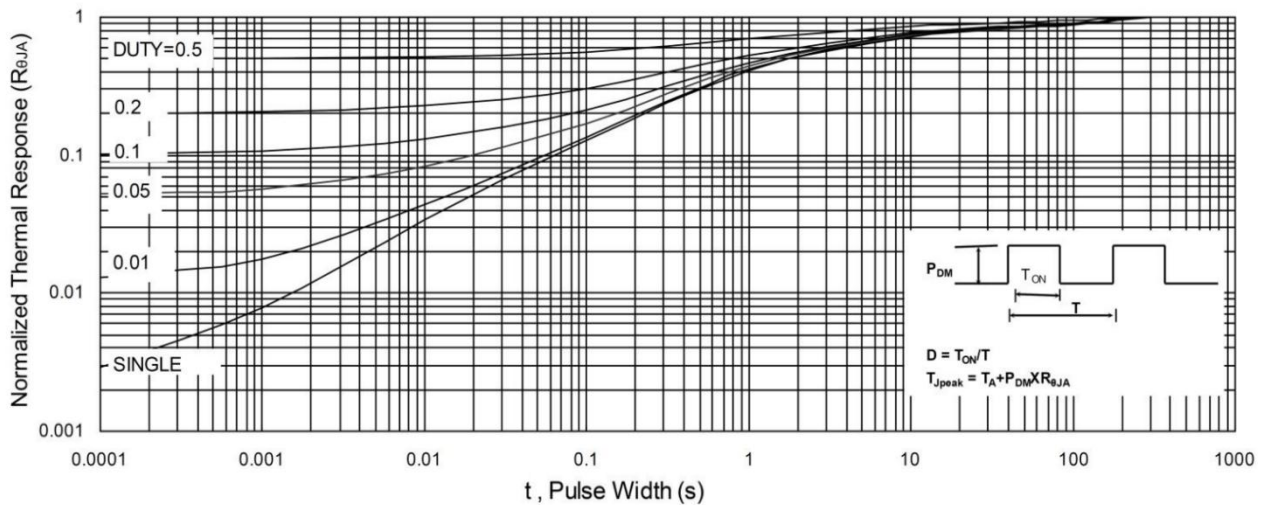
Safe Operating Area



Switching Time Waveform



Unclamped Inductive Switching Waveform



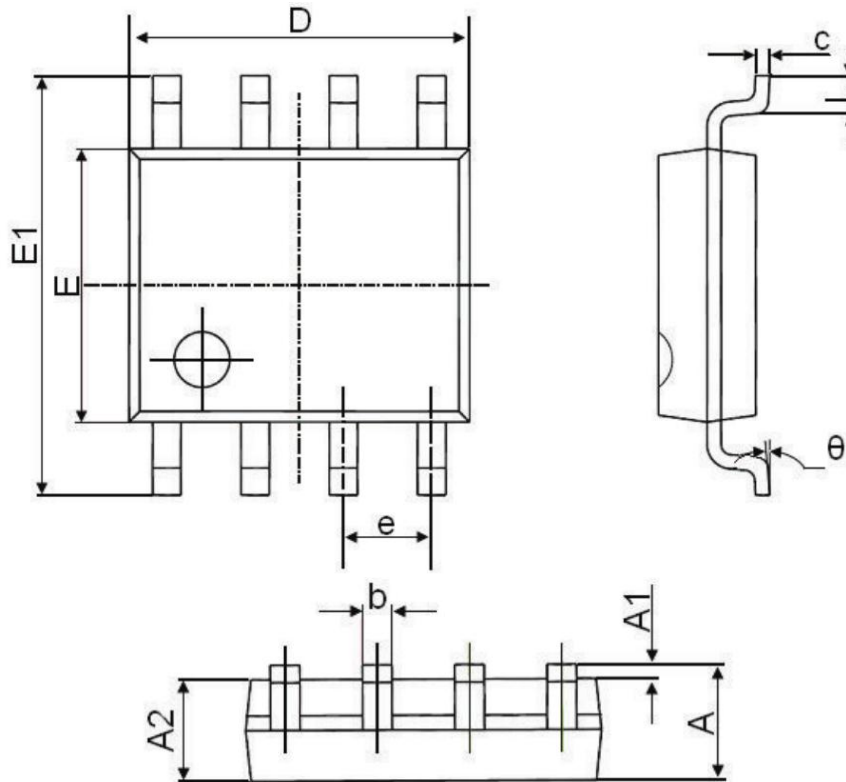
Normalized Maximum Transient Thermal Impedance

$$EAS = \frac{1}{2} L \times I_{AS}^2 \times \frac{BV_{DSS}}{BV_{DSS} - V_{DD}}$$

$$D = T_{ON} / T$$

$$T_{Jpeak} = T_A + P_{DM} \times R_{\theta JA}$$

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
theta	0°	8°	0°	8°