Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	15.5mΩ@-10V	-9.1A
	20mΩ@-4.5V	

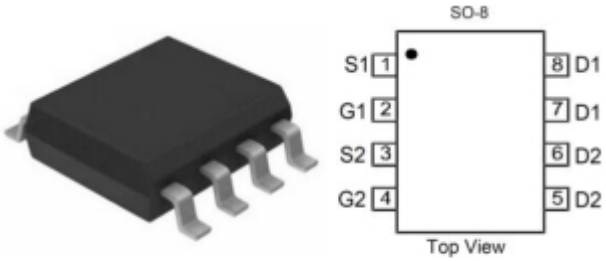
Feature

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed

Application

- DC-DC Converters
- Power Management Functions
- Backlighting

Package



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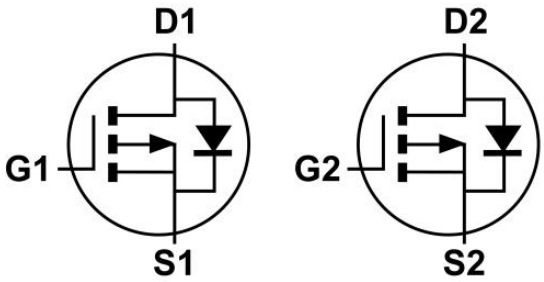
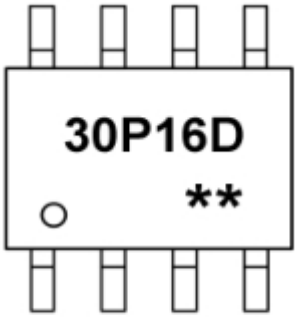
Circuit diagram



Marking



30P16D =Device Code
** =Week Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-9.1	A
Pulsed Drain Current[1)]	I_{DM}	-36	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient[2)]	$R_{\theta JA}$	85	℃
Junction Temperature	T_J	150	
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical characteristics

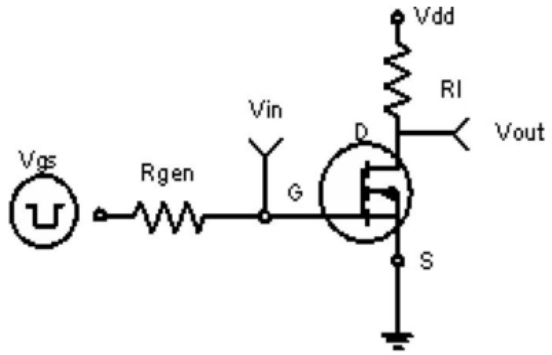
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-30V, V_{GS} = 0V			-1	uA
Gate-Source Leakage	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	uA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.5	-3	V
Drain-Source On-Resistance[1]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-9.1A		15.5	20	mΩ
		V_{GS} =-4.5V, I_D =-6.9A		20	35	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-15V, V_{GS}=0V, f=1MHz		1600		pF
Output Capacitance	C_{oss}			350		
Reverse Transfer Capacitance	C_{rss}			300		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	V_{DD} =-15V, I_D=-1A , V_{GS}=-10V, R_{GEN}=6Ω		10		nS
Turn-on Rise Time	T_r			15		
Turn-off Delay Time	$T_{d(off)}$			110		
Turn-off Fall Time	T_f			70		
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-9.1V, I_D=-10A		30		nC
Gate-Source Charge	Q_{gs}			5.5		
Gate-Drain Charge	Q_{gd}			8		
Drain-Source Diode Characteristics						
Body Diode Voltage	V_{SD}	I_S=-1A,V_{GS}=0V			-1.2	V

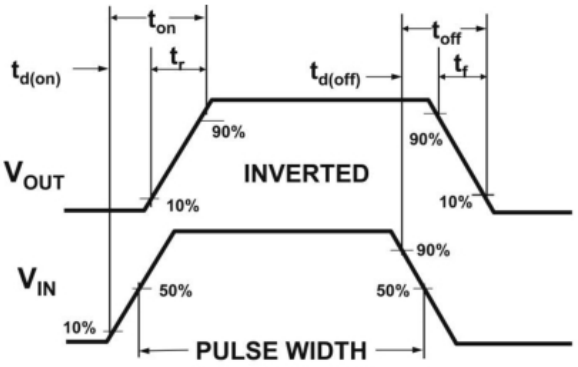
Note:

1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, t≤10s.

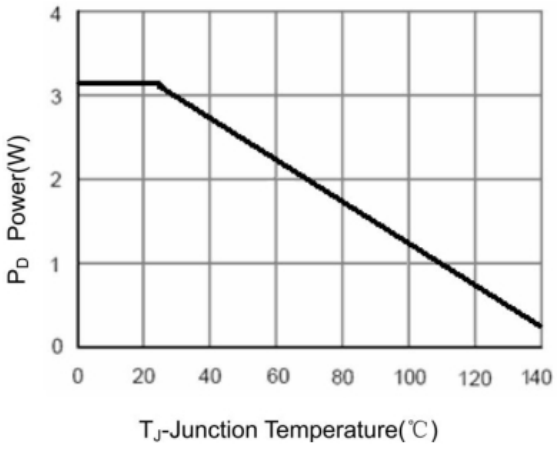
Typical Characteristics



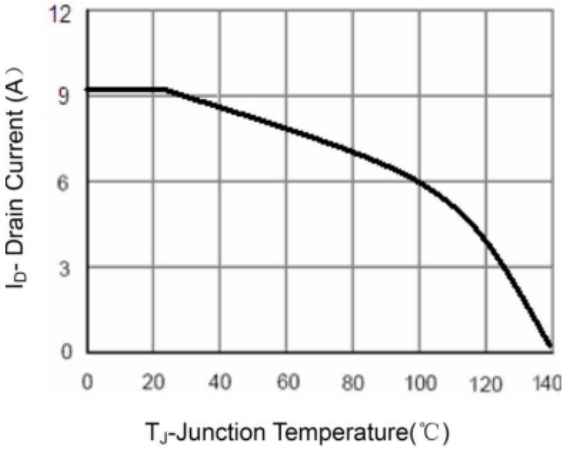
Switching Test Circuit



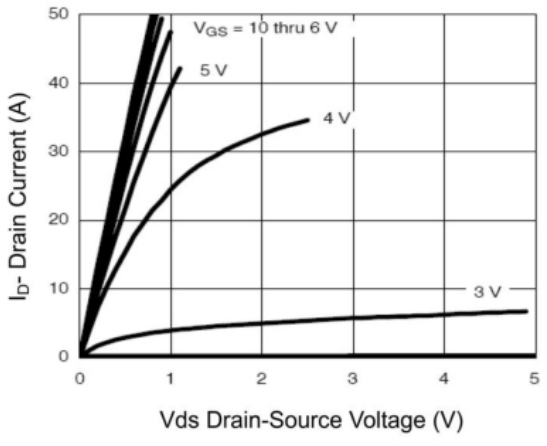
Switching Waveforms



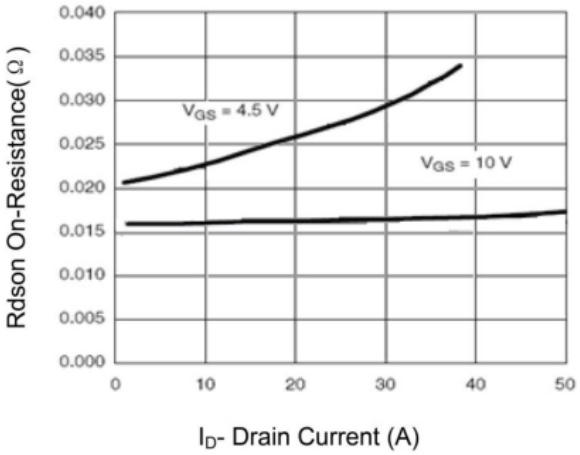
Power Dissipation



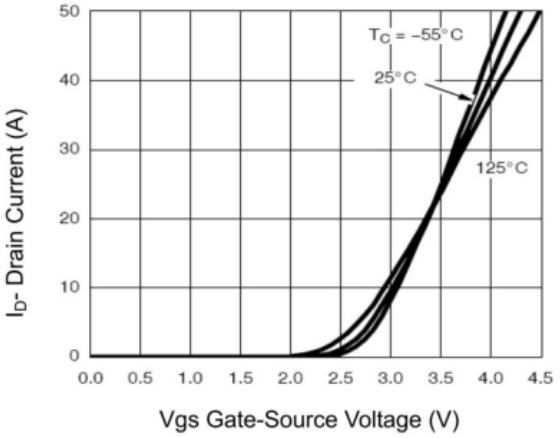
Drain Current



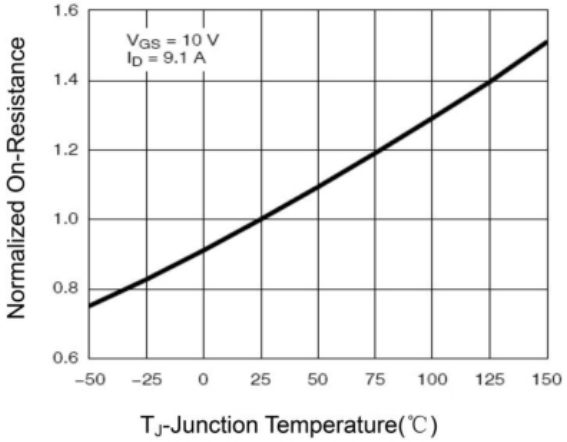
Output Characteristics



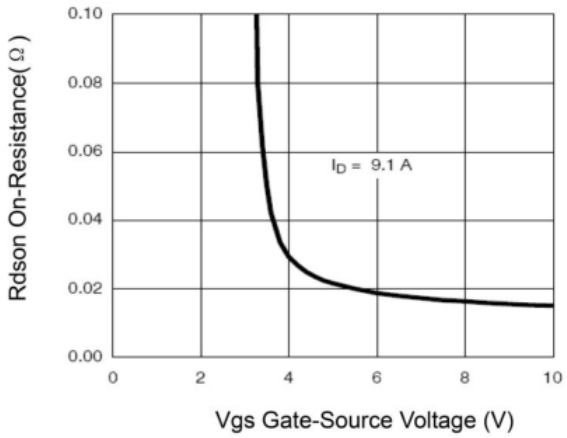
Drain-Source On-Resistance



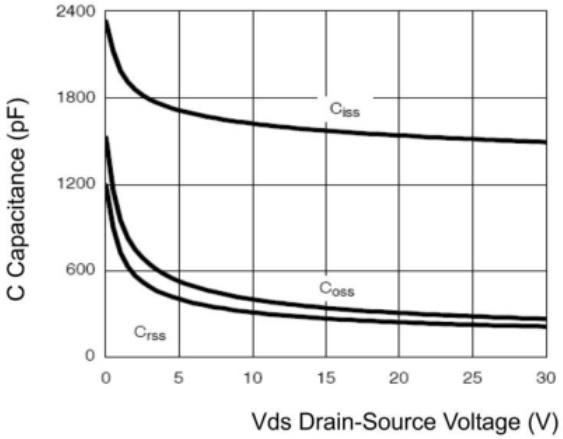
Transfer Characteristics



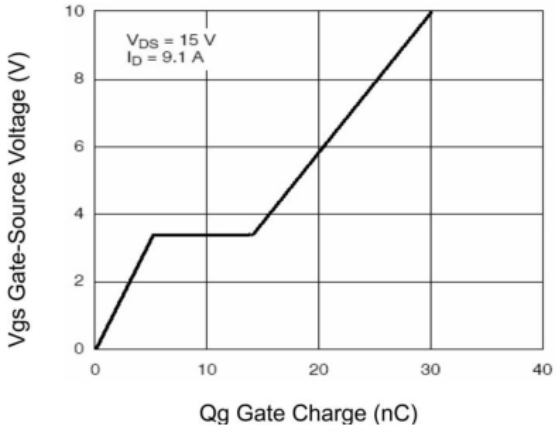
Drain-Source On-Resistance



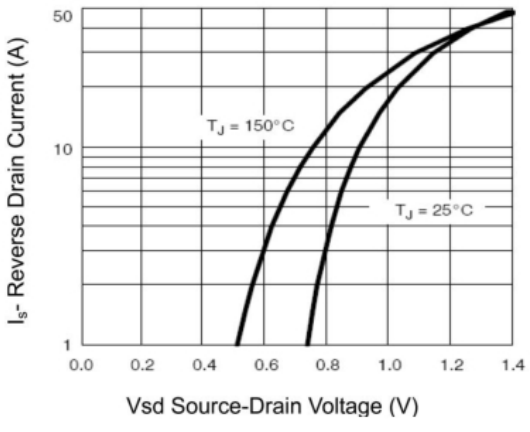
Rdson vs Vgs



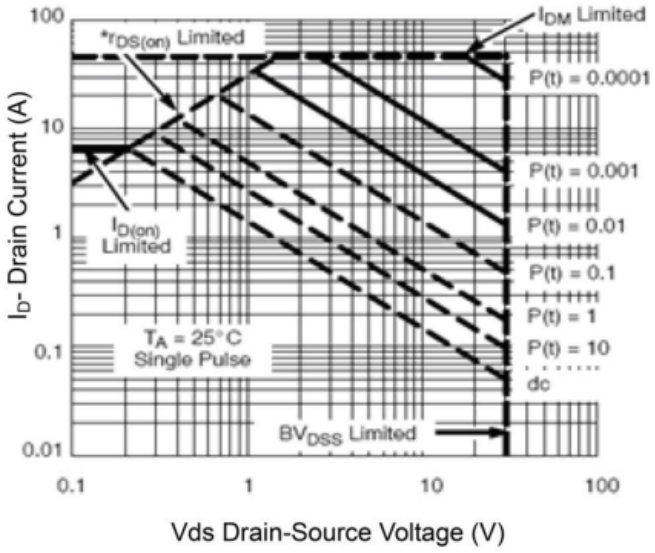
Capacitance vs Vds



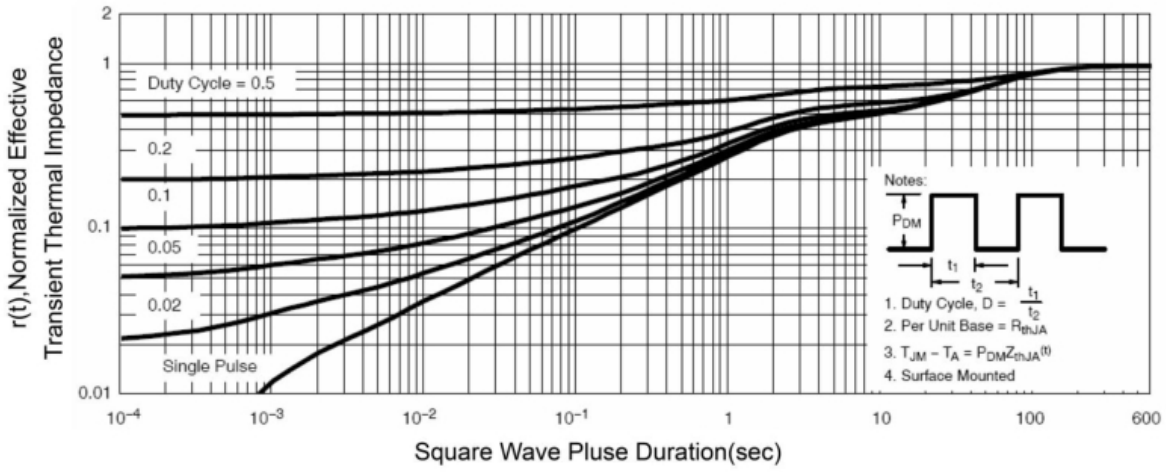
Gate Charge



Source- Drain Diode Forward

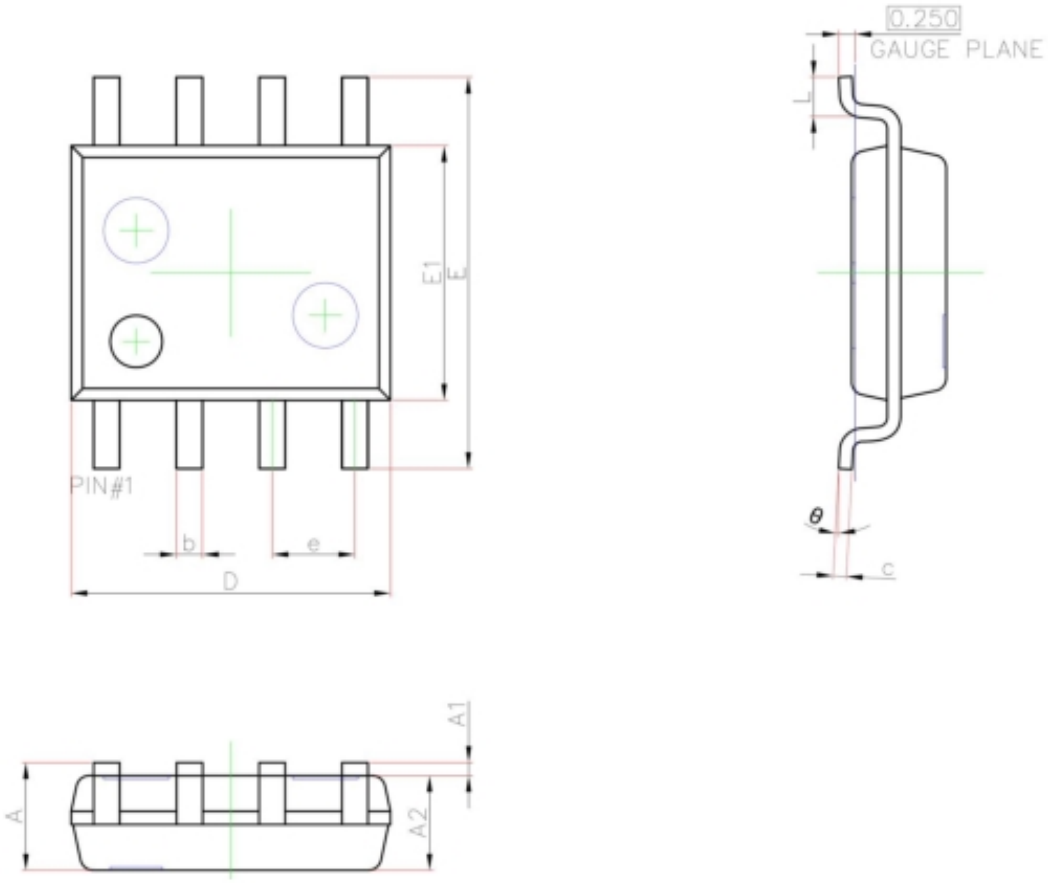


Safe Operation Area



Normalized Maximum Transient Thermal Impedance

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.450	1.750	0.057	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	0.007	0.010
D	4.700	5.100	0.185	0.201
E	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°