

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	4.5mΩ@10V	18A
	6.0mΩ@4.5V	

Feature

- High density cell design for ultra low $R_{DS(ON)}$
- Excellent package for good heat dissipation

Application

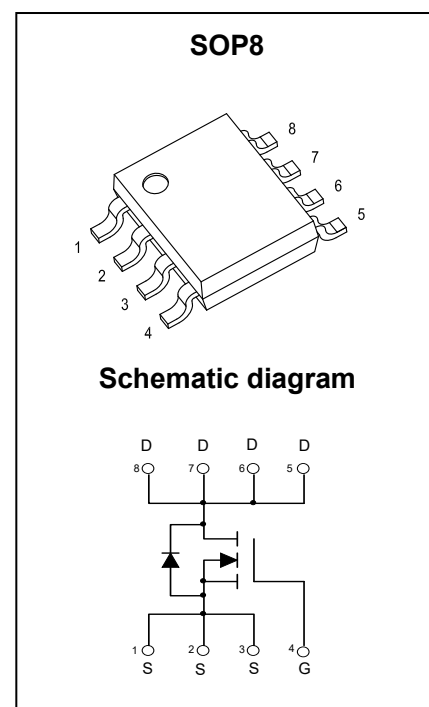
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

MARKING:



Q30N06 = Device Code

YY = Date Code



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	18	A
		13	A
Pulsed Drain Current	I_{DM}	72	A
Power Dissipation	P_D	3.1	W
Thermal Resistance from Junction to Ambient ^a	$R_{\theta JA}$	40	$^\circ\text{C/W}$
		75	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ^b						
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.5	3	V
Drainsource onresistance	R _{DS(on)}	V _{GS} = 10V, I _D = 10A		4.5	6	mΩ
		V _{GS} = 4.5V, I _D = 10A		6.0	8.5	
Forward transconductance	g _{FS}	V _{DS} = 5V, I _D = 10A	10			S
Dynamic Characteristics ^c						
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		2987		pF
Output Capacitance	C _{oss}			306		
Reverse Transfer Capacitance	C _{rss}			280		
Gate resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2		Ω
Switching Characteristics ^c						
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 14A		62.3		nC
GateSource Charge	Q _{gs}			37.1		
GateDrain Charge	Q _{gd}			47.7		
Turnon delay time	t _{d(on)}	V _{DD} = 15V, R _G = 1.5Ω,V _{GS} = 10V, R _L = 0.75Ω		15		ns
Turnon rise time	t _r			40		
Turnoff delay time	t _{d(off)}			60		
Turnoff fall time	t _f			18		
Diode Characteristics						
Diode Forward Voltage ^b	V _{SD}	V _{GS} = 0V , I _S = 15A			1.2	V

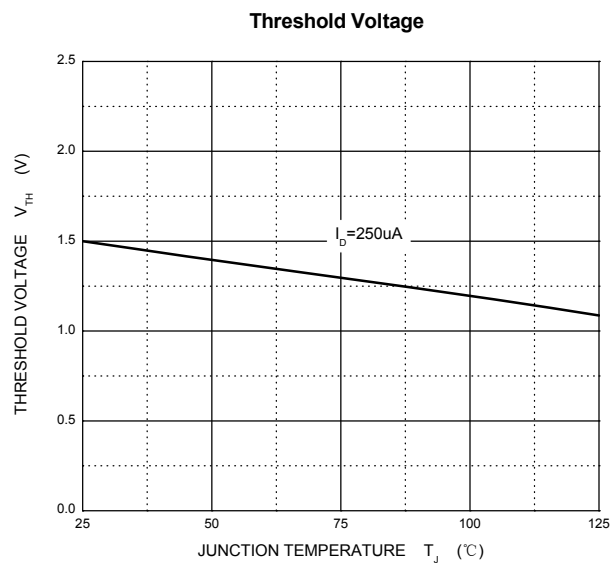
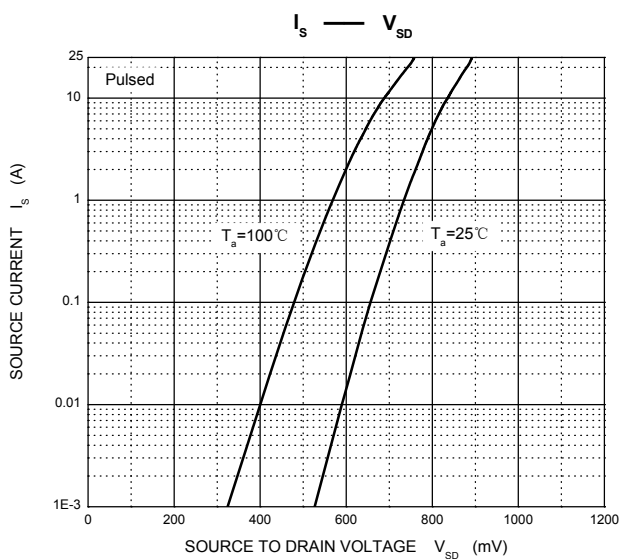
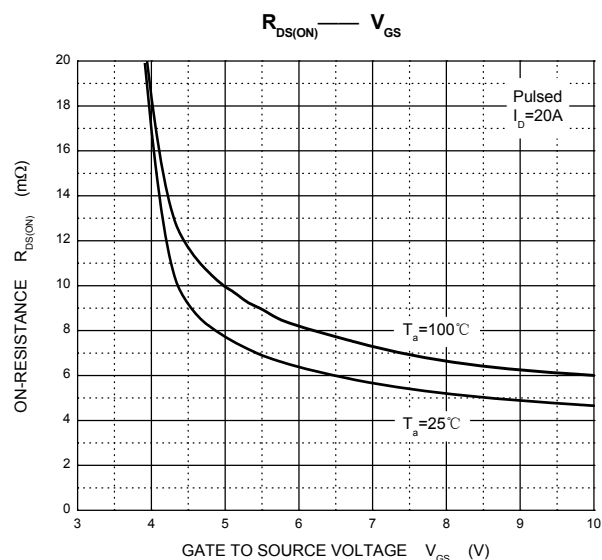
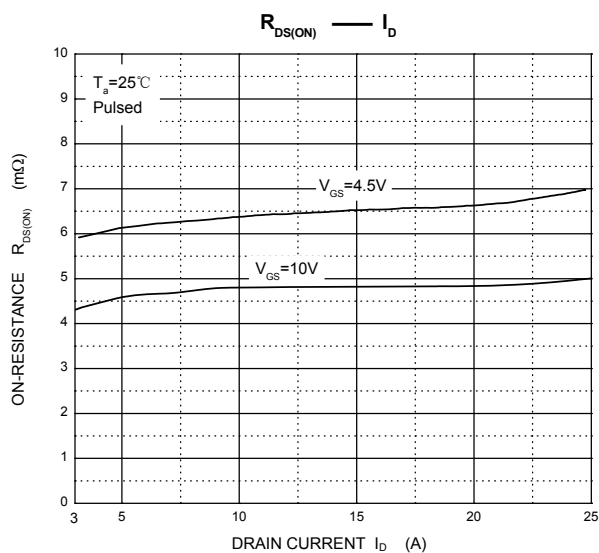
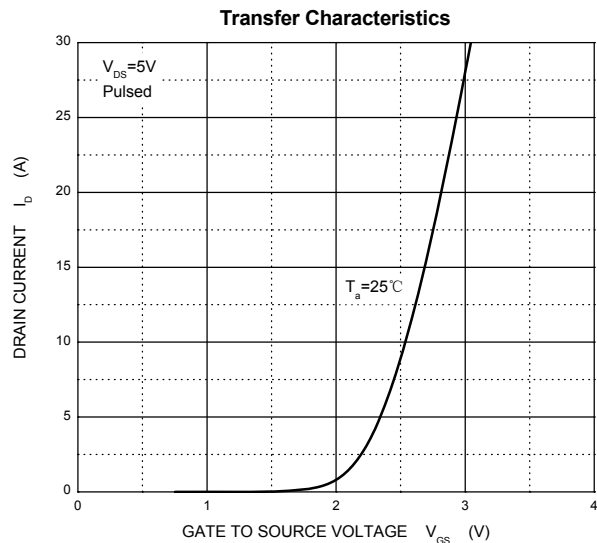
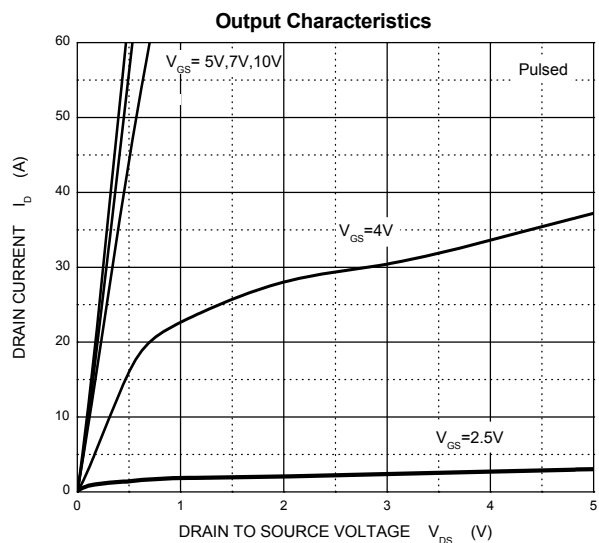
Notes :

a. $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR4 board with 2oz, in a still air environment with $T_A = 25^\circ\text{C}$.

b. Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$.

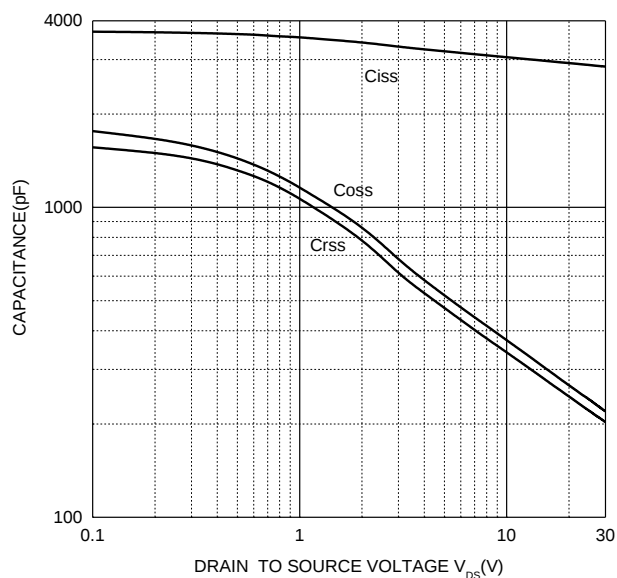
c. Guaranteed by design, not subject to production

Typical Characteristics

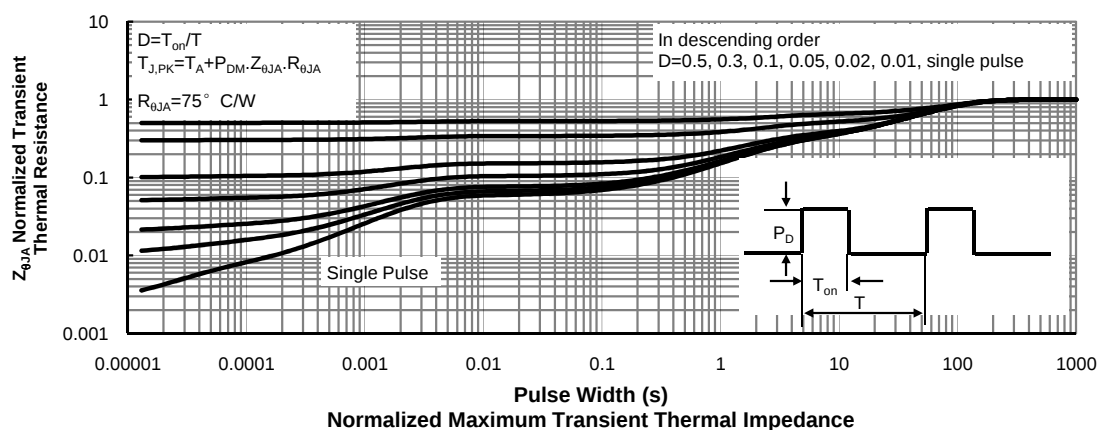
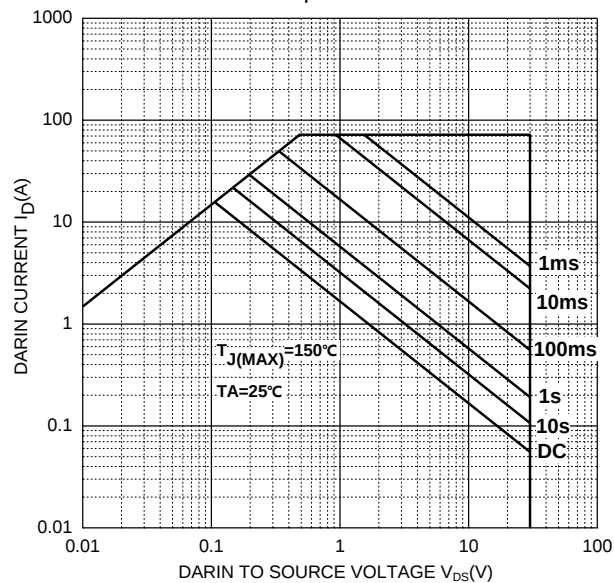


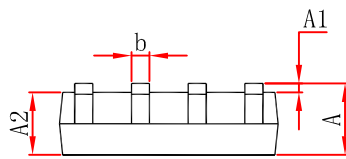
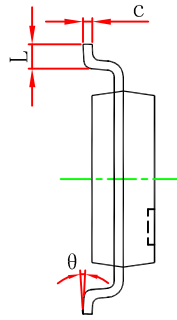
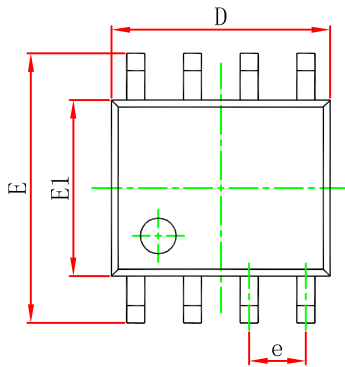
Typical Characteristics

Capacitance Characteristics



Safe Operation Area



SOP8 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	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°