

N-Channel Power MOSFET

DESCRIPTION

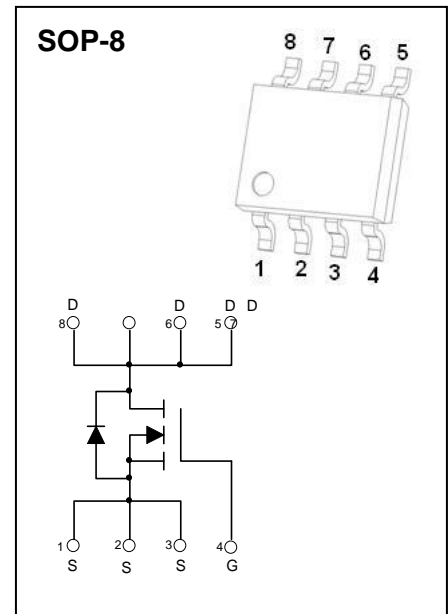
The device uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

FEATURES

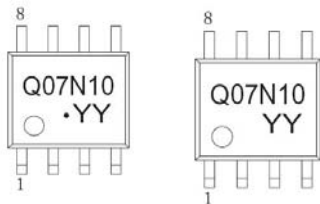
- Green Device Available
- Special process technology for high ESD capability
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current

APPLICATIONS

- DC/DC Primary Side Switch
- Telecom/Server
- Synchronous Rectification



MARKING



Front side

Q07N10= Device code

Solid dot=Pin1 indicator

Solid dot = Green molding compound device,

if none, the normal device

YY=Date Code

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	7	A
Pulsed Drain Current	I_{DM}	28	A
Single Pulsed Avalanche Energy	$E_{AS}^{(1)}$	16	mJ
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 ~+150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	T_L	260	$^\circ\text{C}$

(1). E_{AS} condition: $V_{DD}=25\text{V}$, $L=0.1\text{mH}$, $R_G=25\Omega$, Starting $T_J = 25^\circ\text{C}$



FTK07N10S

Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =80V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2		3.0	V
Static drain-source on-state resistance	R _{DS(on)}	V _{GS} =10V, I _D =7A		25	28	mΩ
		V _{GS} =4.5V, I _D =5A		30	38	mΩ
Forward transconductance	g _{FS}	V _{DS} =5V, I _D =7A		22		S
Dynamic characteristics (note 2)						
Input capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		1848		pF
Output capacitance	C _{oss}			276		
Reverse transfer capacitance	C _{rss}			97.9		
Switching characteristics (note 2)						
Total gate charge	Q _g	V _{DS} =80V, V _{GS} =10V, I _D =7A		31.9		nC
Gate-source charge	Q _{gs}			5.5		
Gate-drain charge	Q _{gd}			8.8		
Turn-on delay time	t _{d(on)}	V _{DD} =50V, I _D =7A, V _{GS} =10V, R _G =3.3Ω, R _L =6.7Ω		11.4		ns
Turn-on rise time	t _r			27.2		
Turn-off delay time	t _{d(off)}			34.7		
Turn-off fall time	t _f			16.6		
Gate Resistance	R _g	f =1MHz, V _{DS} =0V, V _{GS} =0V,		1.9		Ω
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V _{SD}	V _{GS} =0V, I _S =1A			1.2	V
Continuous drain-source diode forward current	I _S				7	A
Pulsed drain-source diode forward current	I _{SM}				28	A

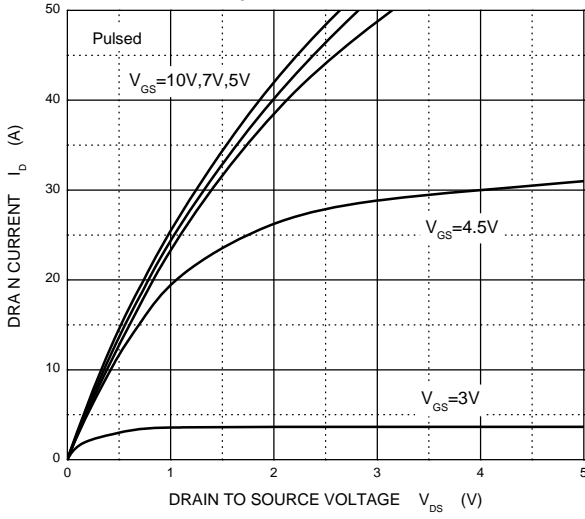
Notes:

1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production testing.

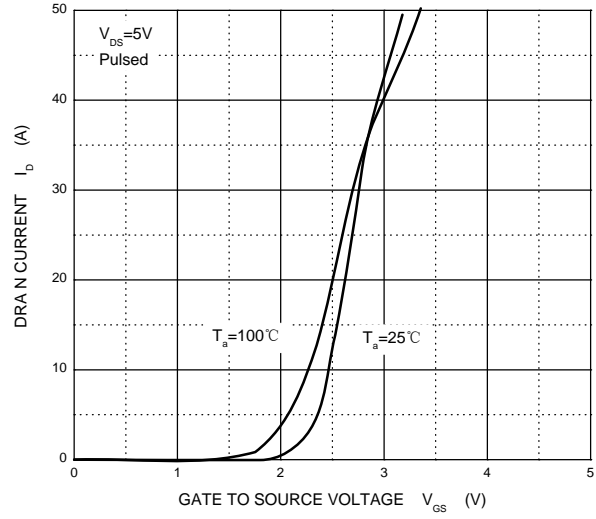


TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

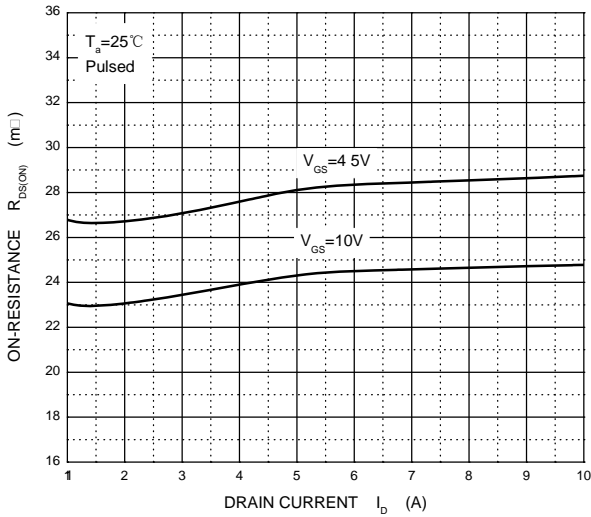
Output Characteristics



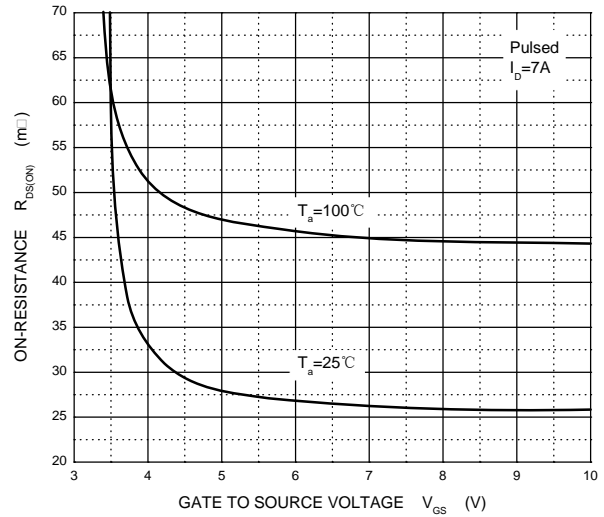
Transfer Characteristics



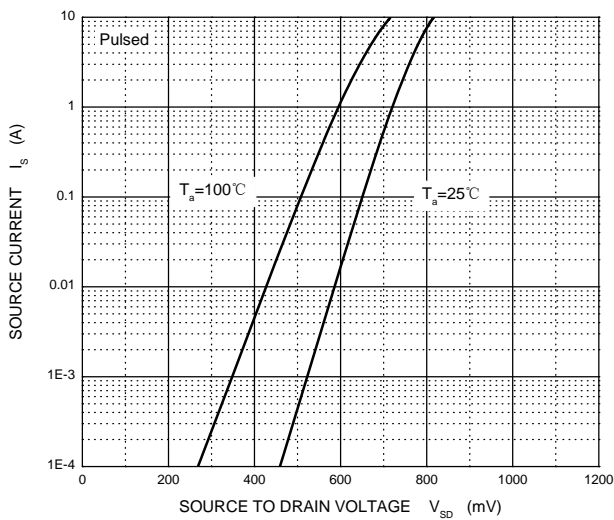
$R_{DS(ON)}$ — I_D



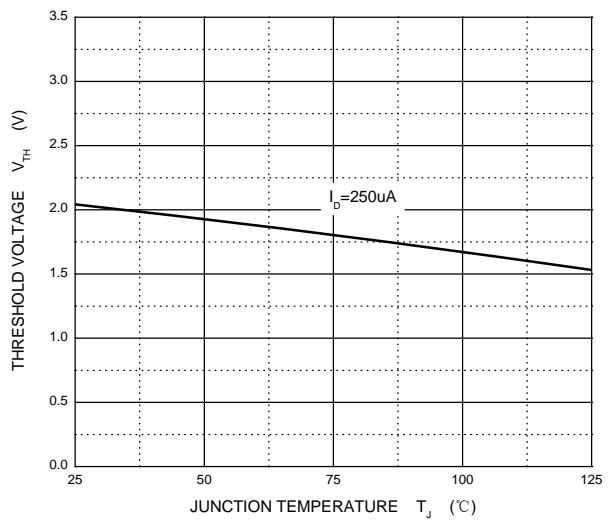
$R_{DS(ON)}$ — V_{GS}



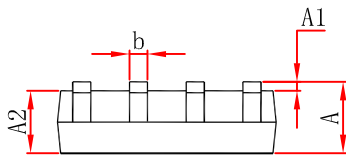
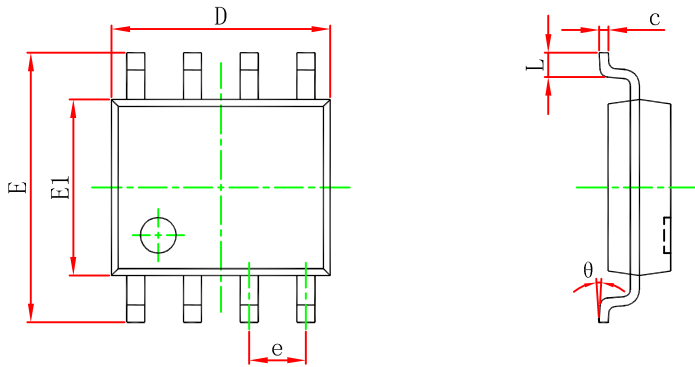
I_S — V_{SD}



Threshold Voltage

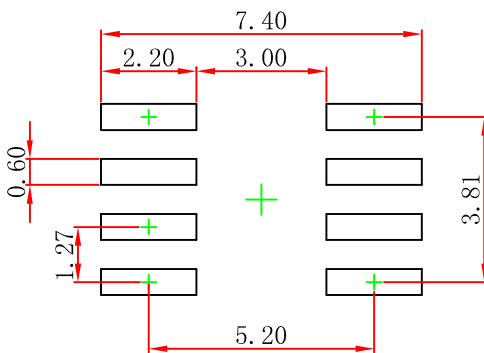


SOP- 8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	---	1.750	---	0.069
A1	0.100	0.250	0.004	0.010
A2	1.250	1.500	0.049	0.059
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°

SOP- 8 Suggested Pad Layout



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