

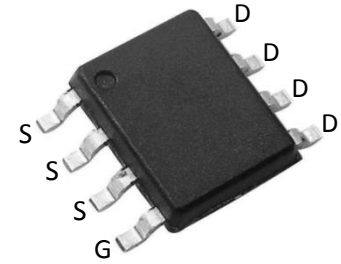
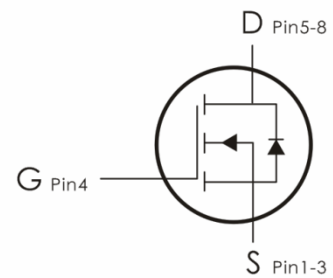
Description:

This N-Channel MOSFET 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:

- 1) $V_{DS}=30V, I_D=9A, R_{DS(ON)} < 23m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current – Continuous ($T_C=25^\circ\text{C}$)	9	A
I_{DM}	Drain Current – Pulsed	30	
P_D	Power Dissipation	2	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	---	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient**	62.5	

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

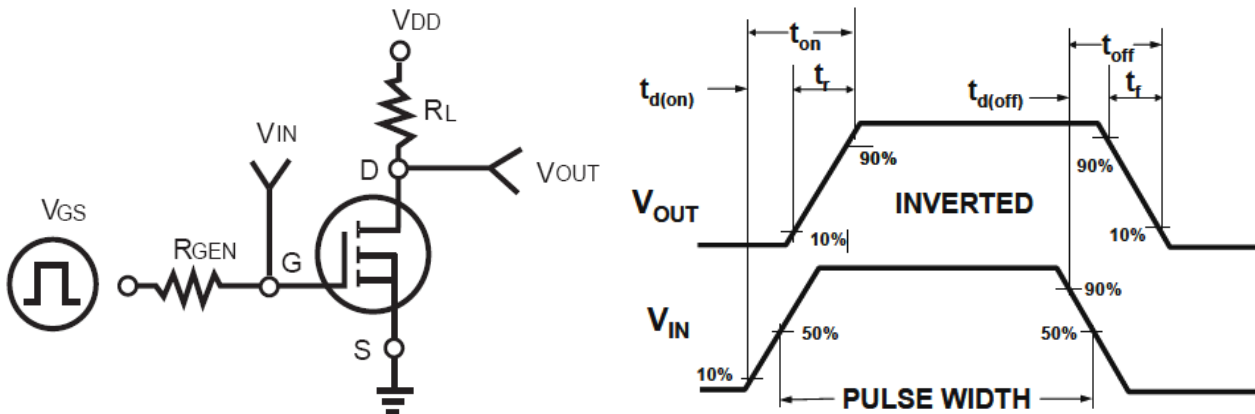
Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	30	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =150V , V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0V	---	---	± 100	nA
On Characteristics ³						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1.2		2.4	V
R _{DS(ON)}	Static Drain-Source On Resistance	V _{GS} =10V, I _D =7A	---	20	23	m Ω
		V _{GS} =4.5V, I _D =5A		30	42	
G _{FS}	Forward Transconductance	V _{DS} =5V, I _D =7A	3	10	---	S
Dynamic Characteristics ⁴						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	540	---	pF
C _{oss}	Output Capacitance		---	83	---	
C _{rss}	Reverse Transfer Capacitance		---	63	---	
Switching Characteristics ⁴						
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V, I _D =7A, R _L =15Ω V _{GS} =10V, R _G =2.5Ω	---	10	---	ns
t _r	Rise Time		---	4	---	ns
t _{d(off)}	Turn-Off Delay Time		---	27	---	ns
t _f	Fall Time		---	5	---	ns
Q _g	Total Gate Charge	V _{GS} =5V, V _{DS} =10V, I _D =7A	---	13	---	nC
Q _{gs}	Gate-Source Charge		---	1.3	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	4.6	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage ¹	V _{GS} =0V, I _S =30A, T _J =25 °C	---		1.2	V
I _{SD}	Continuous Source Current	---	---	---	2	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

Typical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Switch Time Test Circuit and Switching Waveforms:



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Figure1. Power Dissipation

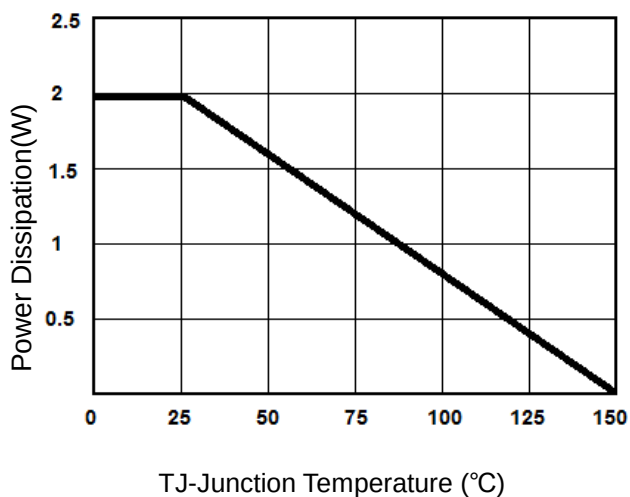


Figure2. Drain Current

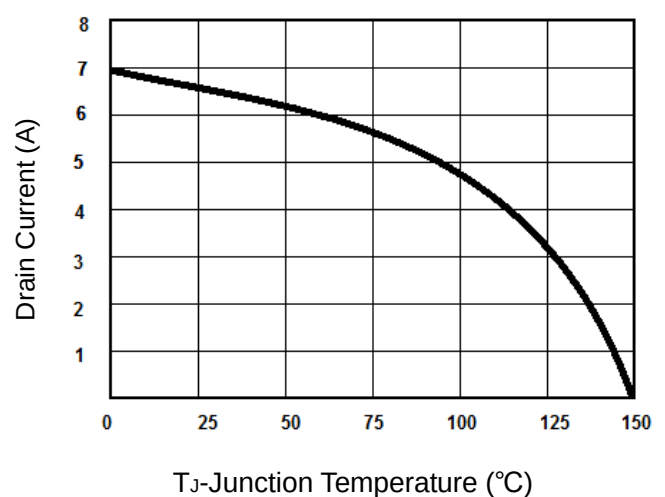


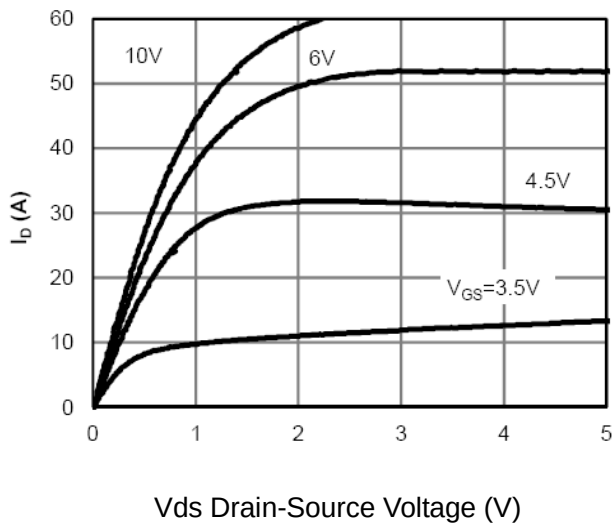
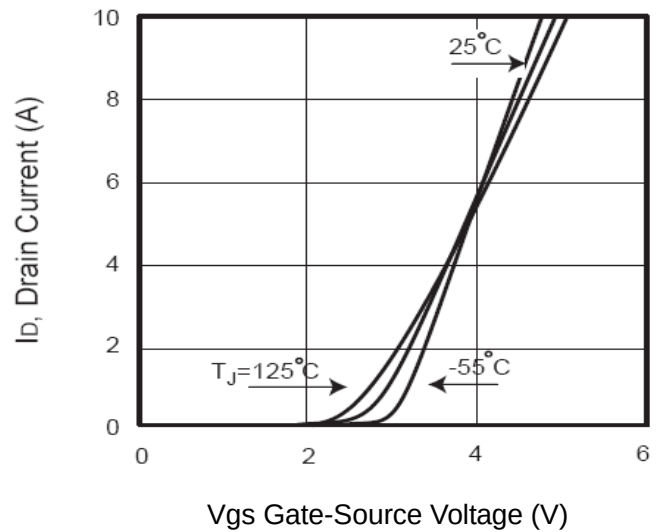
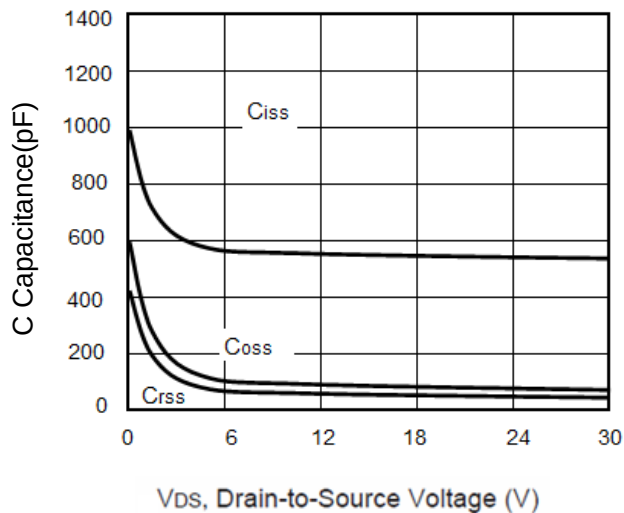
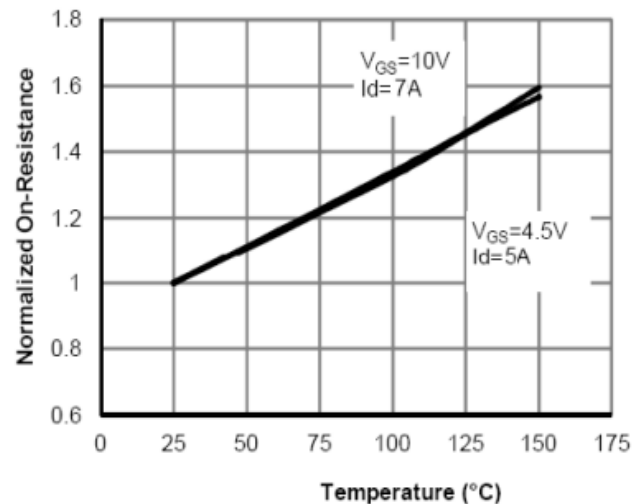
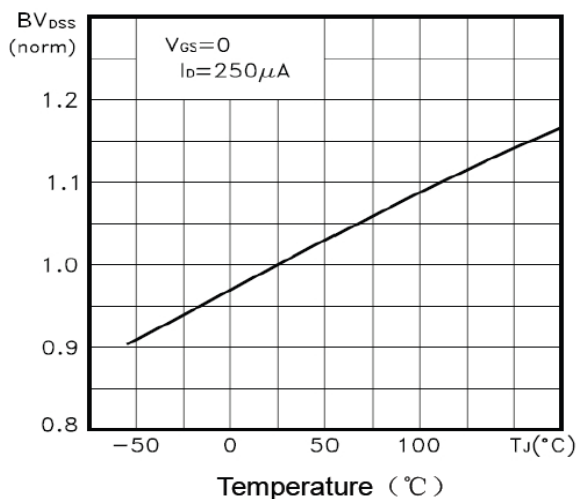
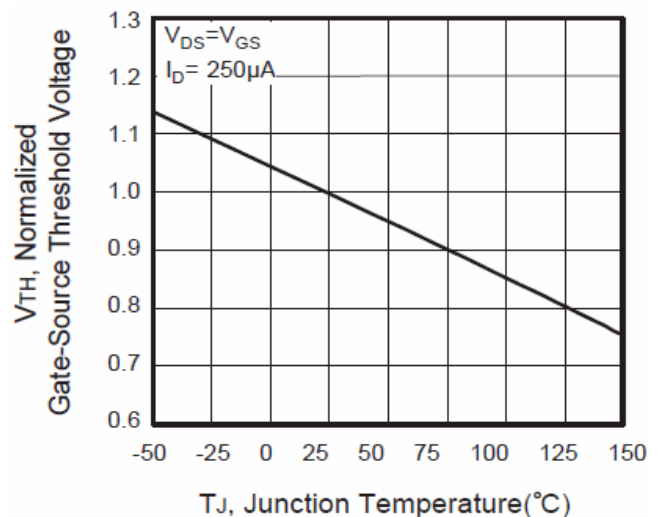
Figure3. Output Characteristics

Figure4. Transfer Characteristics

Figure5. Capacitance

Figure6. $R_{DS(ON)}$ vs Junction Temperature

Figure7. Max BV_{DSS} vs Junction Temperature

Figure8. $V_{GS(th)}$ vs Junction Temperature


Figure9. Gate Charge Waveforms

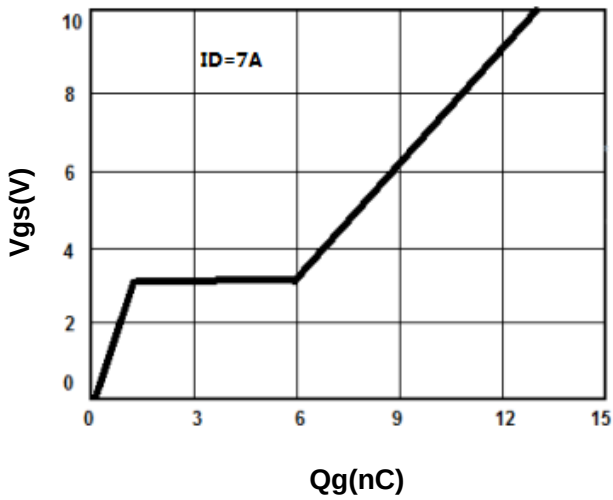


Figure10. Maximum Safe Operating Area

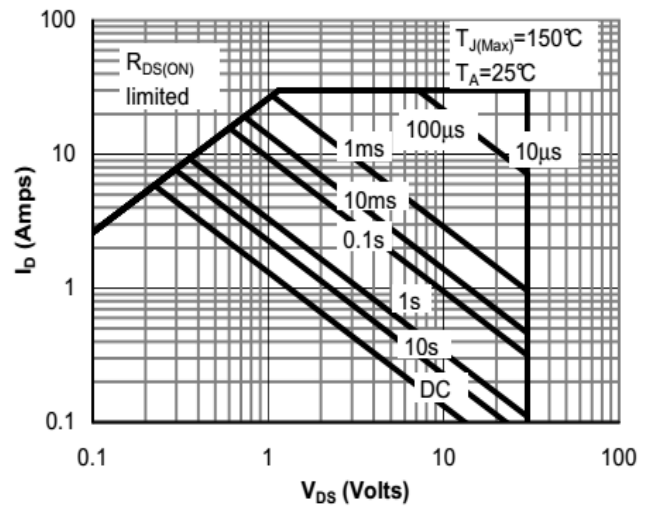
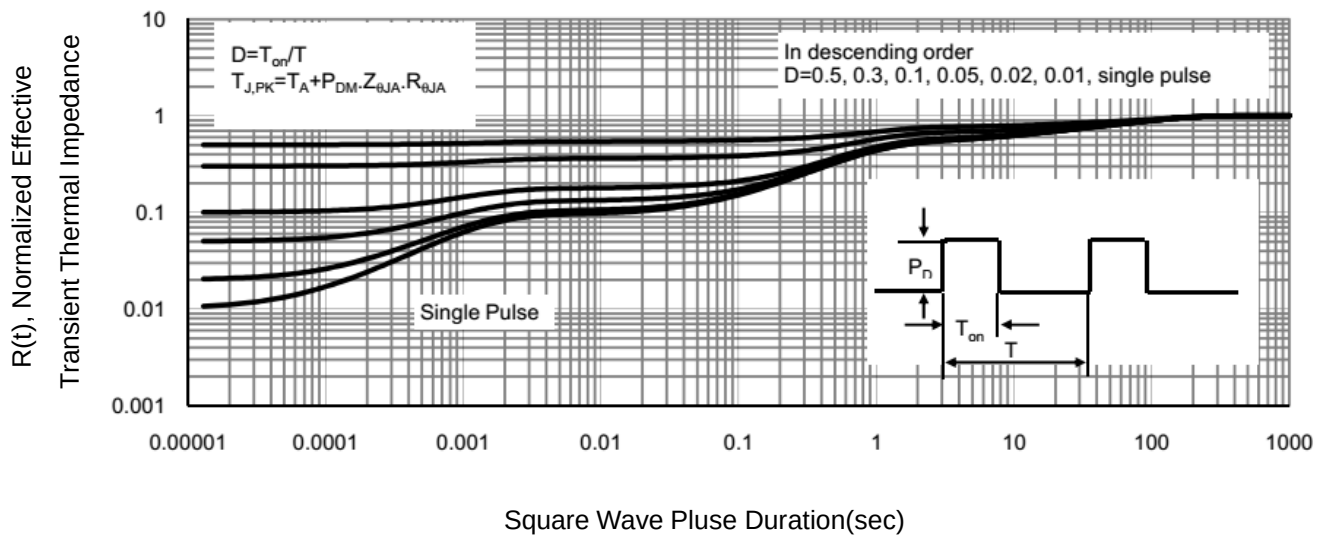
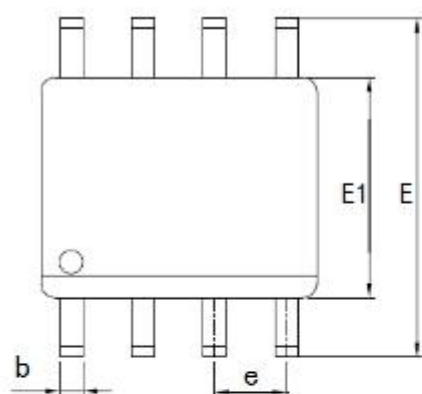
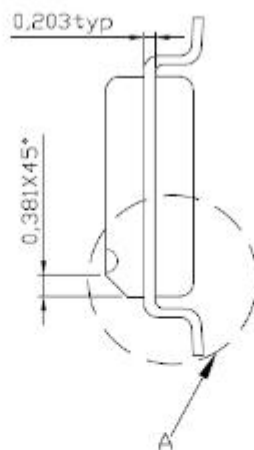
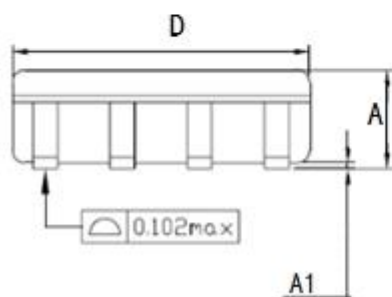
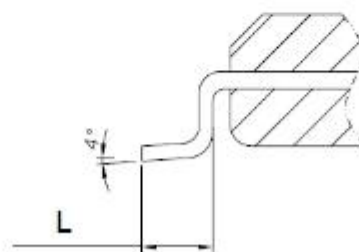


Figure11. Normalized Maximum Transient Thermal Impedance





A 局部放大

COMMON DIMENSIONS			
SYMBOL	mm		
	MIN	NOM	MAX
A	1.35	1.55	1.75
A1	0.1	0.15	0.2
b	0.346	0.406	0.466
D	4.8	4.89	4.98
E	5.75	6.00	6.25
E1	3.81	3.90	3.99
e	1.27TYP		
L	0.406	0.838	1.27



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