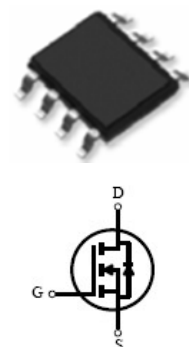
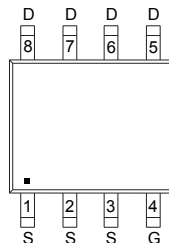


N-Channel High Density Trench MOSFET
PRIMARY CHARACTERISTICS

BV _{DSS}	R _{DS(on)} MAX	I _D
30V	12mΩ@V _{GS} =10V	14A
	16mΩ@V _{GS} =4.5V	

SOP-8 PACKAGE

GENERAL DESCRIPTION

- Super high dense cell trench design for low R_{DS(on)}.
- Rugged and reliable.
- Surface Mount package.

MECHANICAL DATA

- Case : Molded plastic,SOP-8
- Polarity : Shown above
- Terminals :Plated terminals, solderable per MIL-STD-750,Method 2026
- Epoxy : UL94-V0 rated flame retardant

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous (Note 1) @ T _A = 25 °C -Pulse (Note 2)	I _D	15	A
	I _{DM}	60	
Maximum Power Dissipation (Note 1)	P _D	T _A =25°C 3.2	W
		T _A =75°C 2.0	
Operating Junction and Storage Temperature Range	T _J ,T _{STG}	- 55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient (Note 1)	R _{thJA}	40	°C/W
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Note:

1. Surface Mounted on FR4 Board , t ≤ 10sec .
2. Pulse width limited by maximum junction temperature

N-Channel High Density Trench MOSFET
ELECTRICAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = 250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V , V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±20V , V _{DS} = 0V			±100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.6	3	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V , I _D = 15A		11	13	mΩ
		V _{GS} = 4.5V , I _D = 9A		13	16	mΩ
Forward Transconductance	g _{fs}	V _{DS} = 15V , I _D = 12.5A		18		S
DYNAMIC CHARACTERISTICS (Note 4)						
Input Capacitance	C _{ISS}	V _{DS} = 10V , V _{GS} = 0V f = 1.0MHz		109		pF
Output Capacitance	C _{OSS}			124		pF
Reverse Transfer Capacitance	C _{RSS}			107		pF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-On Delay Time	td _(ON)	V _{DD} = 15V , I _D = 1A V _{GEN} = 10V R _{GEN} = 6 Ω , R _L = 15 Ω		12		nS
Rise Time	tr			10		nS
Turn-Off Delay Time	td _(OFF)			57		nS
Fall Time	tf			21		nS
Total Gate Charge	Qg	V _{DS} = 10V , I _D = 1A V _{GS} = 10V		16.0		nC
Gate-Source Charge	Qgs			3.3		nC
Gate-Drain Charge	Qgd			4.0		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Drain-Source Diode Forward Current (Note 1)	I _S				4.3	A
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} = 0V , I _S = 1.0A		0.7	1.1	V

Note:

3. Pulse Test Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

4. Guaranteed by design, not subject to production testing.



N-Channel High Density Trench MOSFET

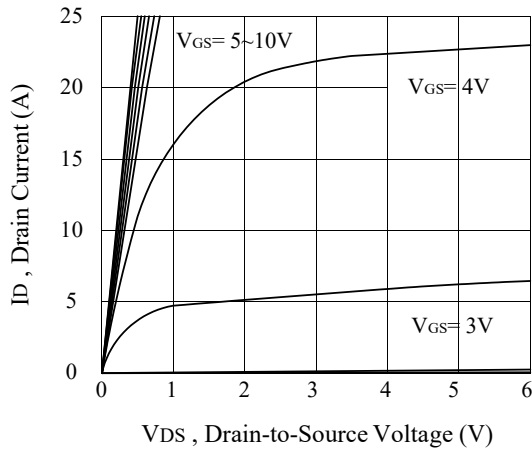


Figure 1. Output Characteristics

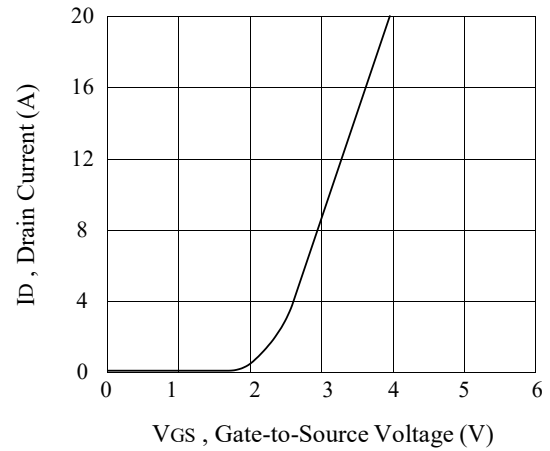


Figure 2. Transfer Characteristics

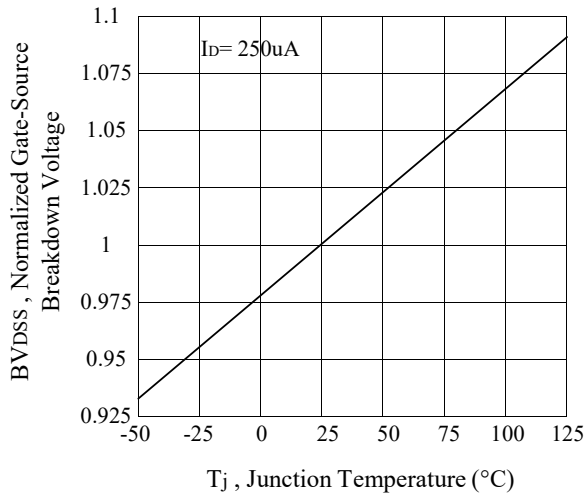


Figure 3. Breakdown Voltage Variation with Temperature

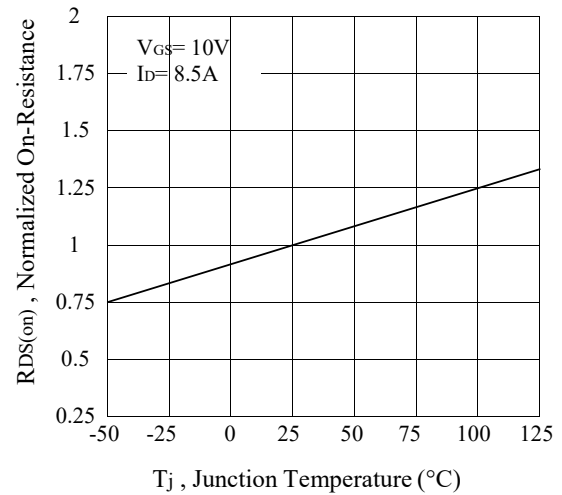


Figure 4. On-Resistance Variation with Temperature

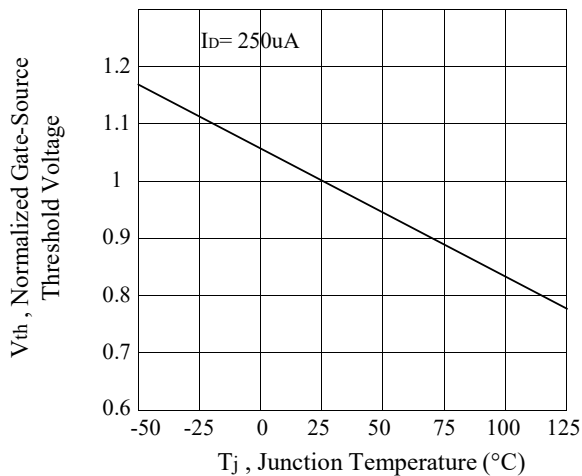


Figure 5. Gate Threshold Variation with Temperature

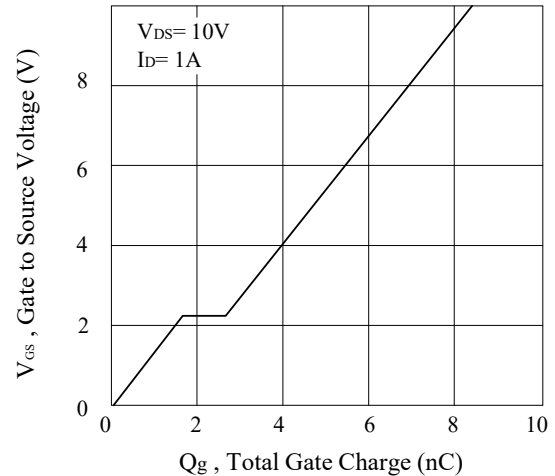
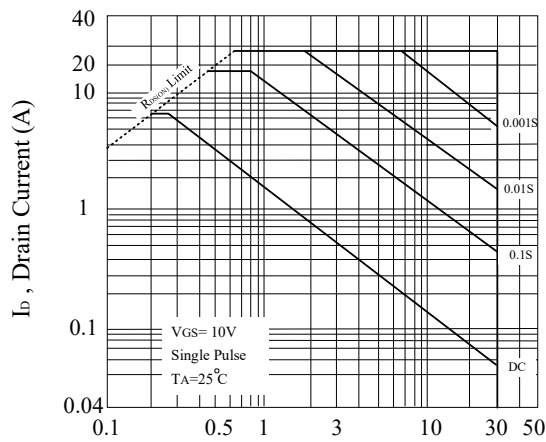


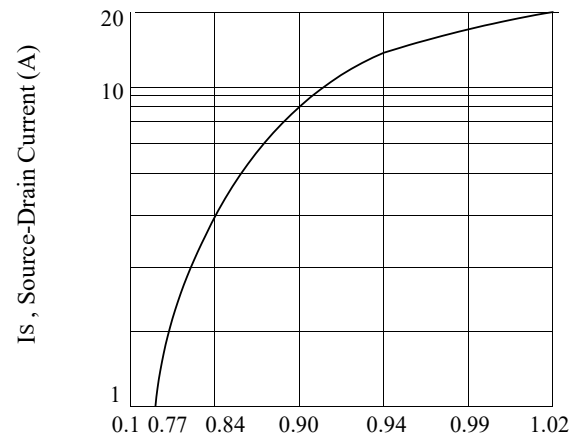
Figure 6. Gate Charge



N-Channel High Density Trench MOSFET



V_{DS}, Drain-Source Voltage (V)
Figure 7. Maximum Safe Operating Area



V_{SD}, Body Diode Forward Voltage (V)
Figure 8. Body Diode Forward Voltage Variation with Source Current

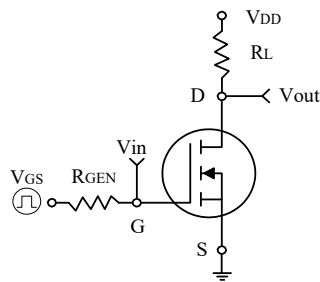


Figure 9. Switching Test Circuit and Switching Waveforms

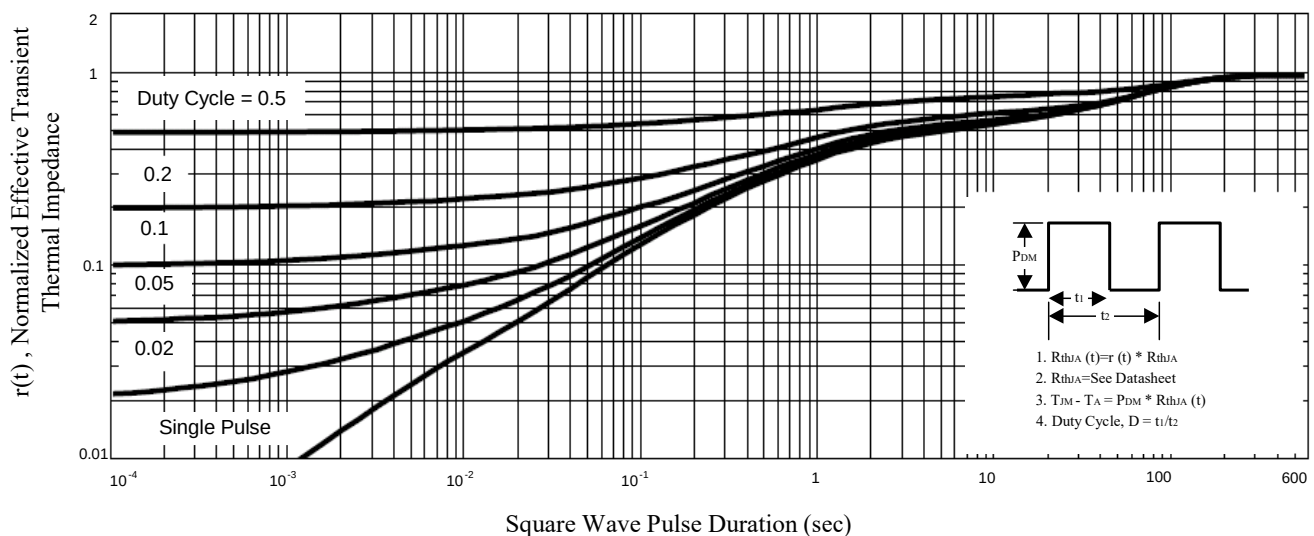
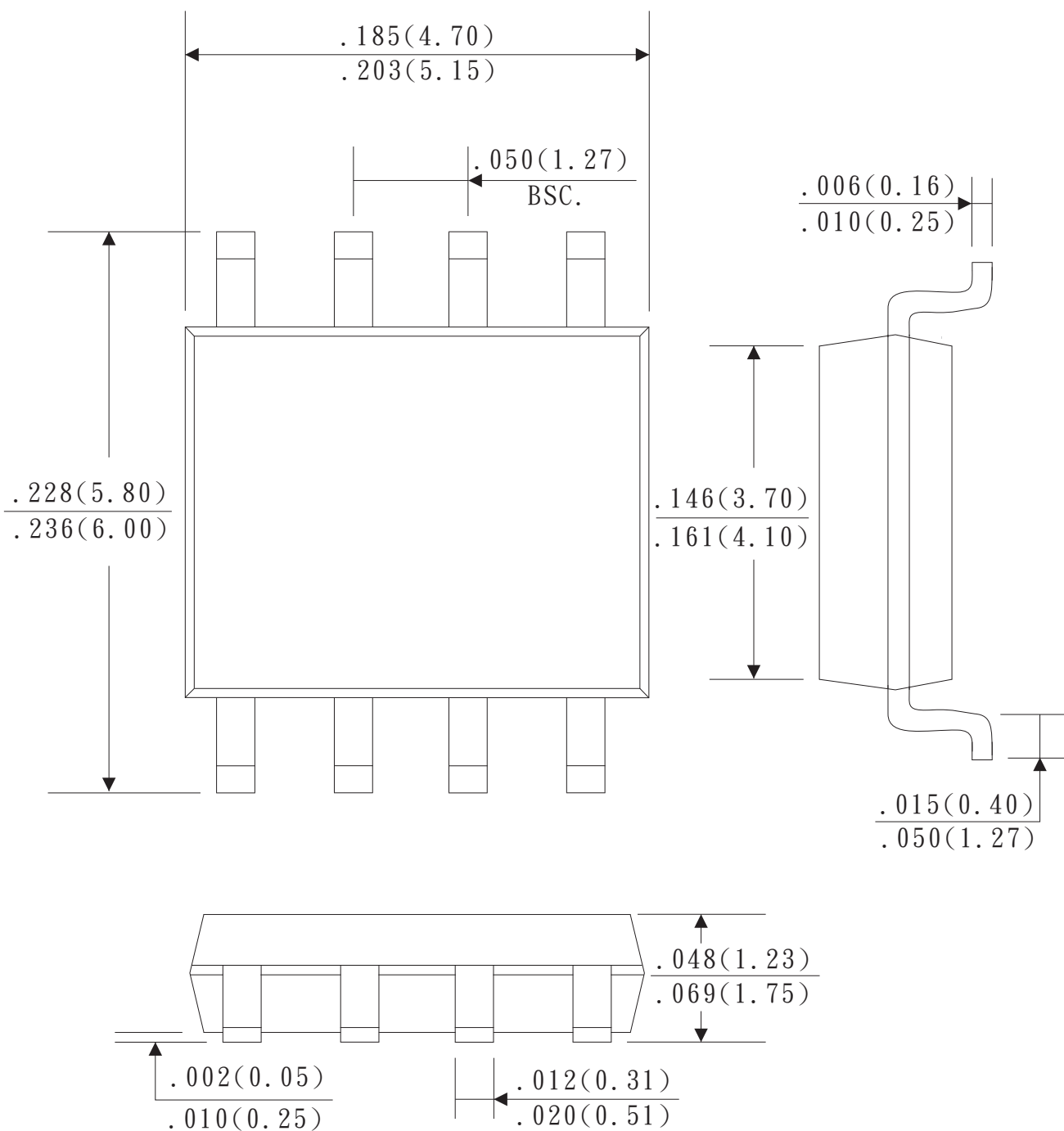


Figure 10. Normalized Thermal Transient Impedance Curve



Outline Drawing

SOP-8



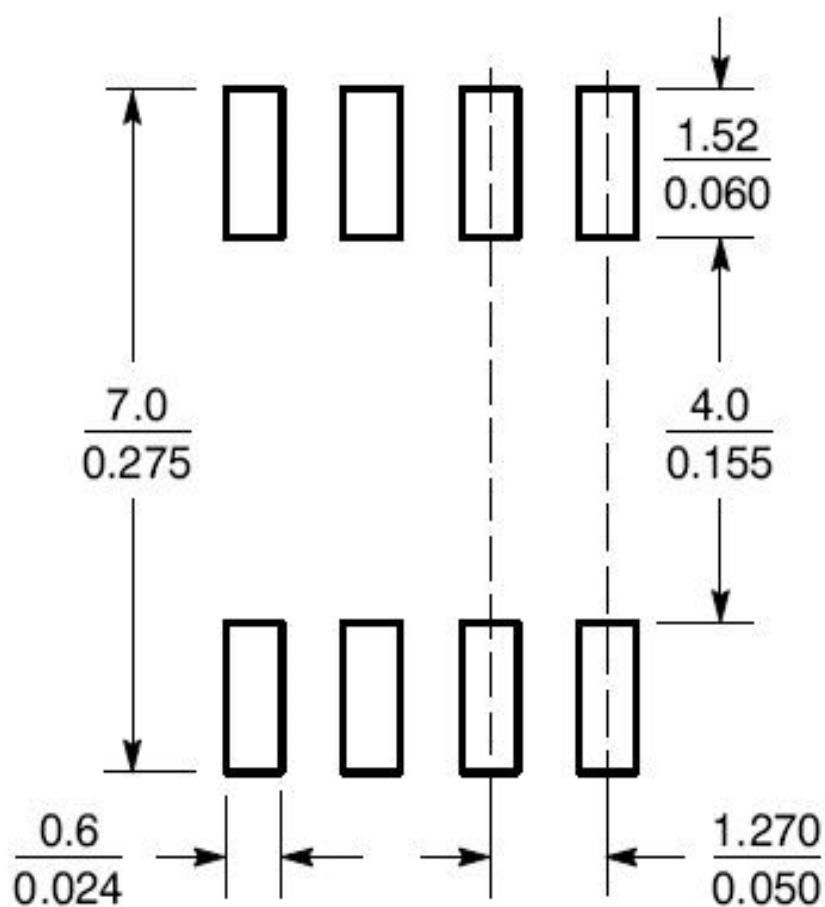
Dimensions in inches and (millimeters)

Rev.C



Suggested Soldering Pad Layout

SOP-8



Dimensions in inches and (millimeters)

RevA

N-Channel High Density Trench MOSFET**Ordering Information:**

Device PN	Packing
SEQ4410 -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	Tape&Reel: 4 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Halogen free product for packing code suffix "H"

(3) WS : Willas brand abbreviation, Label Type does not display

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