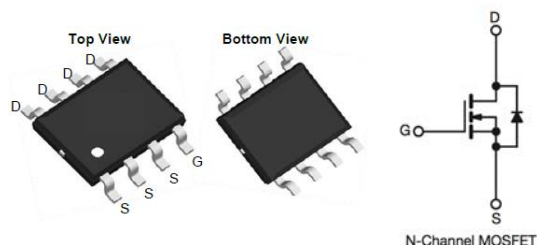


PRIMARY CHARACTERISTICS

BV _{DSS}	R _{DS(on)} MAX	I _D
30V	7.3mΩ@V _{GS} =10V	14.6A
	9.7mΩ@V _{GS} =4.5V	

SCHEMATIC DIAGRAM
SOP-8 PACKAGE



GENERAL DESCRIPTION

- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industrial

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	Ratings	Unit
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage		V _{GSS}	± 20	V
Drain Current (Continuous) *AC	T _A =25℃	I _D	14.6	A
	T _A =70℃		11.7	
Drain Current (Pulse) *B		I _{DM}	50	A
Power Dissipation	T _A =25℃	P _D	2.5	W
Operating Temperature/ Storage Temperature		T _J /T _{STG}	-55~150	℃

Thermal Resistance Ratings

Parameter		Symbol	Typical	Unit
Maximum Junction-to-Ambient	$t \leq 10S$	R_{thJA}	50	°C/W

Electrical Characteristics @T_A=25°C unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$	--	--	1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_{DS} = 250\mu A$	1	1.5	2.5	V
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	--	--	± 100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 15A$	--	5.5	7.3	m Ω
	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 11A$	--	7.5	9.7	m Ω
Diode Forward Voltage	V_{SD}	$I_{SD} = 1A, V_{GS} = 0V$	--	0.73	1.2	V
Diode Forward Current *AC	I_S	$T_A = 25^\circ C$	--	--	3.4	A
Switching						
Total Gate Charge	Q_g	$V_{DS} = 15V, I_D = 14A,$ $V_{GS} = 5V$	--	16	--	nC
Gate-Source Charge	Q_{gs}		--	5	--	nC
Gate-Drain Charge	Q_{gd}		--	3	--	nC
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, I_D = 1A,$ $V_{GS} = 10V, R_{GEN} = 6\Omega$	--	17	--	ns
Turn-on Rise Time	t_r		--	5	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	50	--	ns
Turn-Off Fall Time	t_f		--	10	--	ns
Dynamic						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V,$ $f = 1.0\text{ MHz}$	--	2250	--	pF
Output Capacitance	C_{oss}		--	325	--	pF
Reverse Transfer Capacitance	C_{rss}		--	185	--	pF

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the ≤ 10 s junction to ambient thermal resistance rating

Typical Performance Characteristics (TJ = 25 °C, unless otherwise noted)

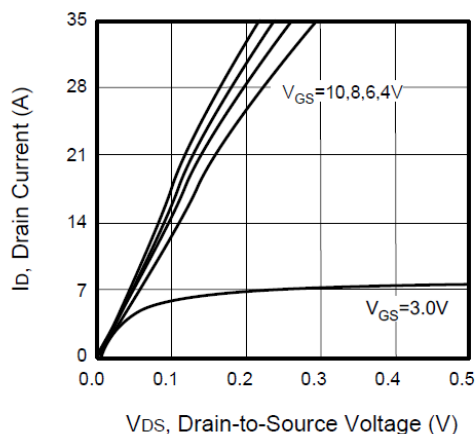


Figure 1. Output Characteristics

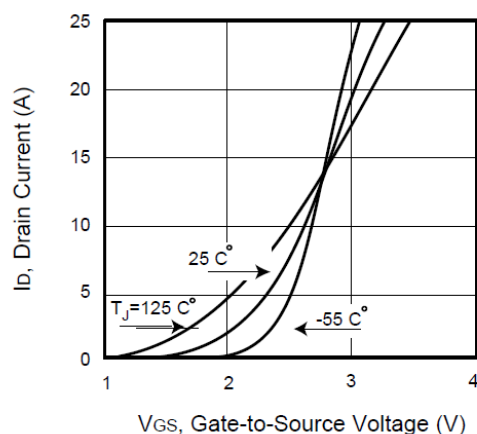


Figure 2. Transfer Characteristics

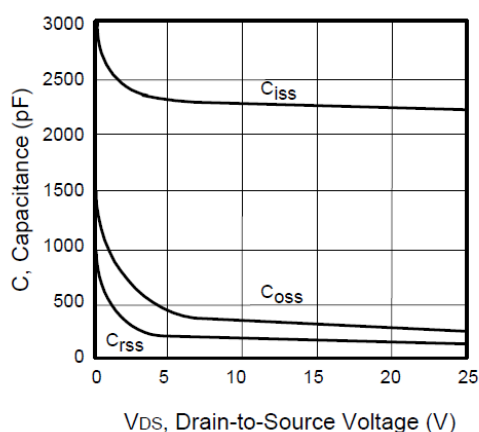


Figure 3. Capacitance

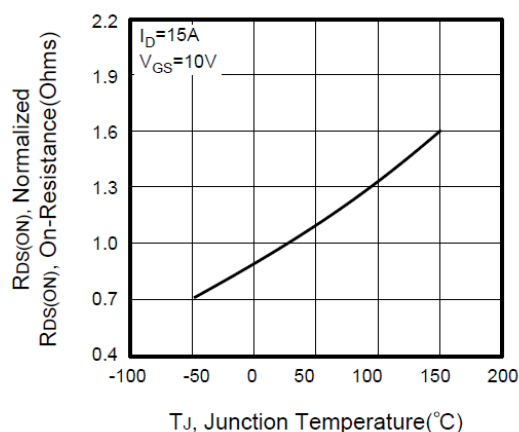


Figure 4. On-Resistance Variation with Temperature

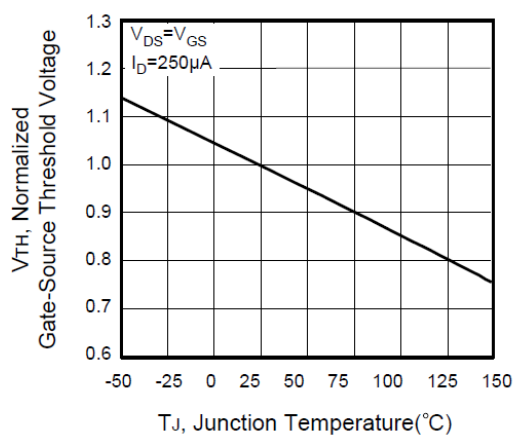


Figure 5. Gate Threshold Variation with Temperature

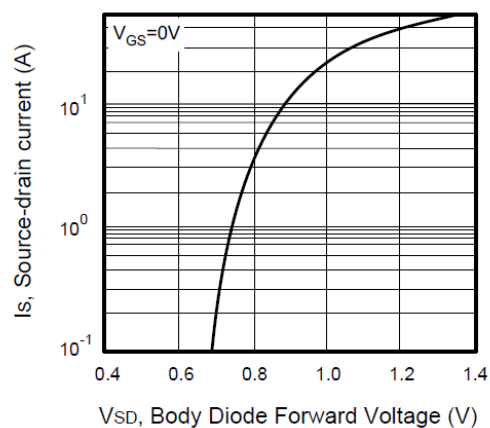


Figure 6. Body Diode Forward Voltage Variation with Source Current

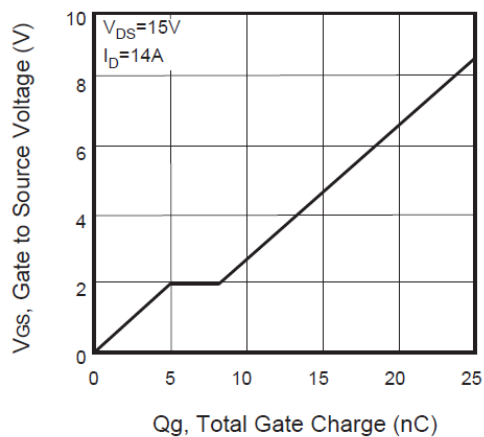


Figure 7. Gate Charge

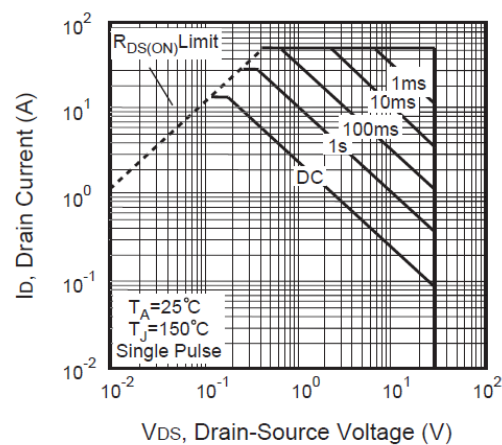


Figure 8. Maximum Safe Operating Area

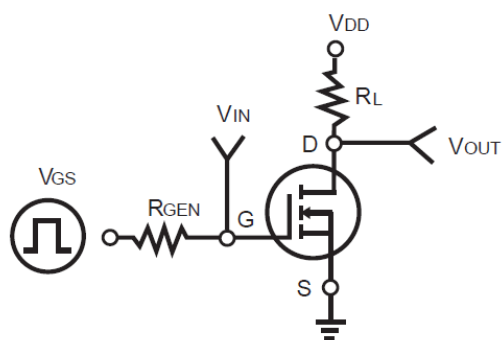


Figure 9. Switching Test Circuit

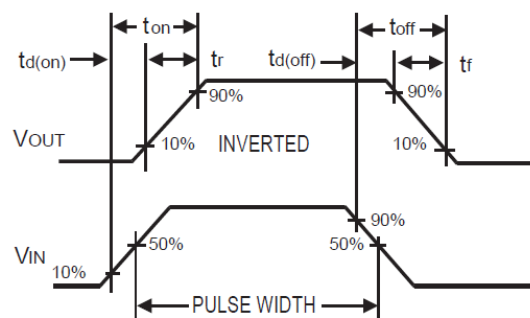


Figure 10. Switching Waveforms

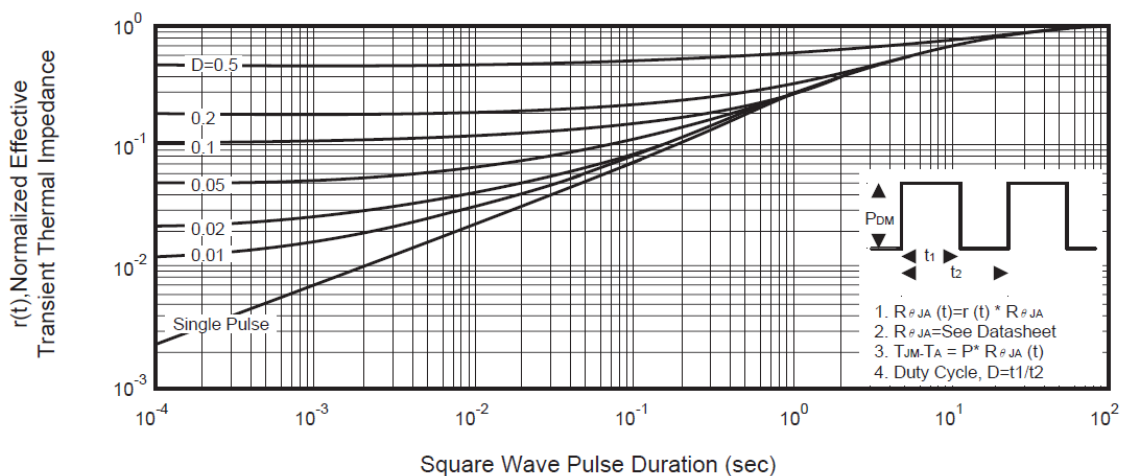
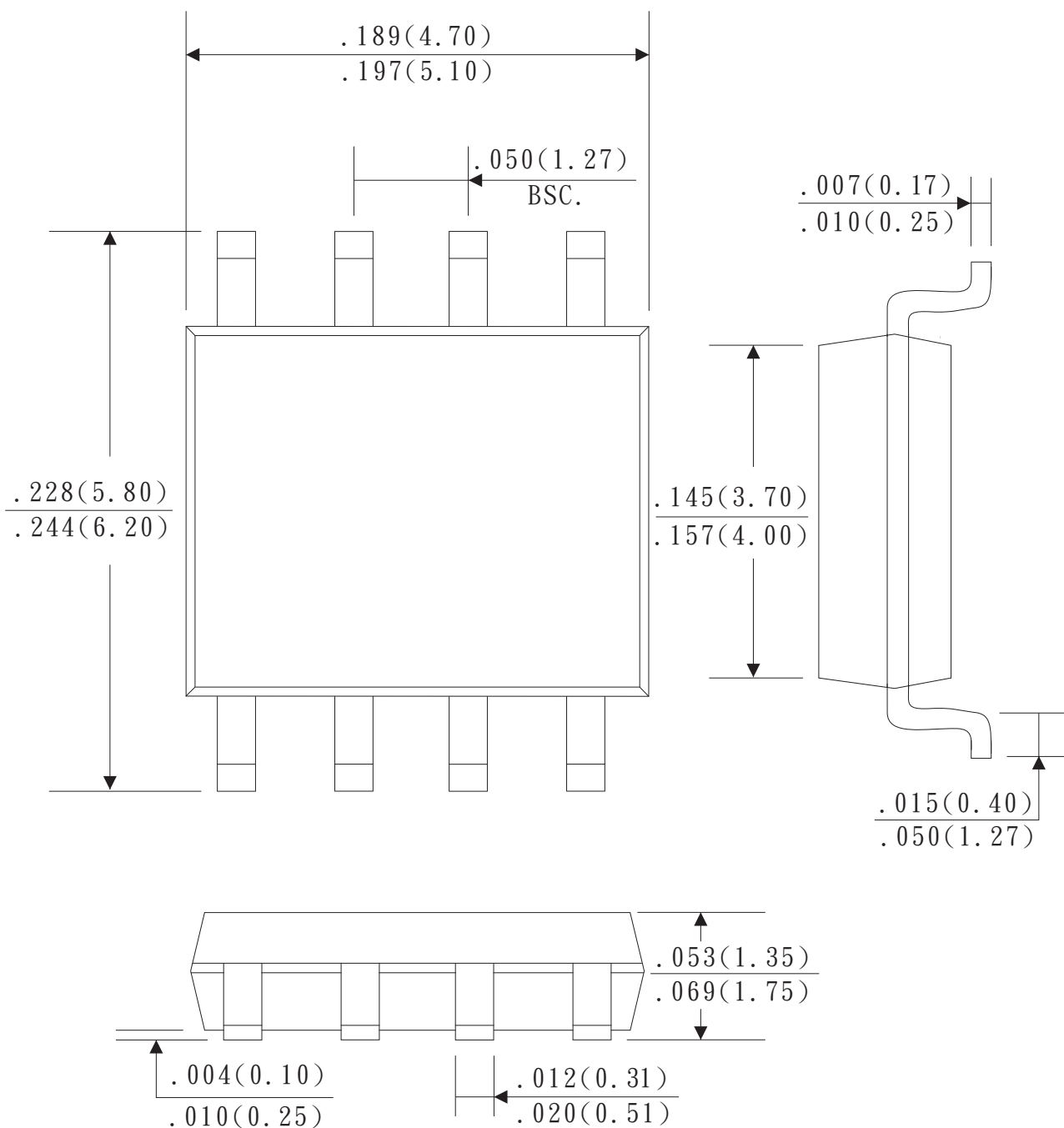


Figure 11. Normalized Thermal Transient Impedance Curve

Outline Drawing

SOP-8



Dimensions in inches and (millimeters)

Rev.D

Ordering Information:

Device PN	Marking	Packing
SEQ4446SQ -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	4446 ⁽⁴⁾	Tape&Reel: 3 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

(4) There may be additional marking, which relates to the lot trace code information (data code and vendor code), the logo or the environmental category on the device

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