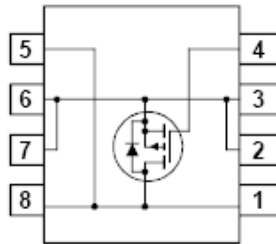
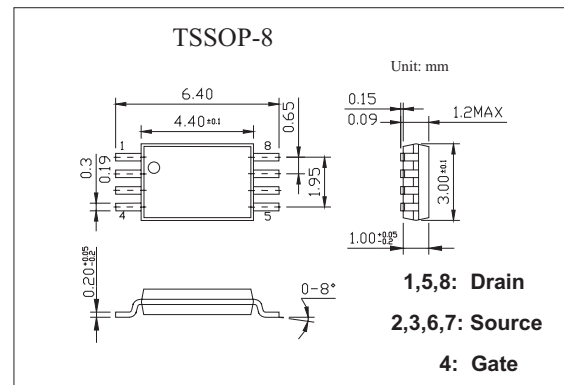


## P-Channel 1.8V Specified PowerTrench MOSFET

### KDW258P

#### ■ Features

- -9 A, -12 V.  $R_{DS(ON)} = 11m\Omega$  @  $V_{GS} = -4.5 V$   
 $R_{DS(ON)} = 14m\Omega$  @  $V_{GS} = -2.5V$   
 $R_{DS(ON)} = 20m\Omega$  @  $V_{GS} = -1.8V$
- Rds ratings for use with 1.8 V logic
- High performance trench technology for extremely low  $R_{DS(ON)}$
- Low gate charge
- Low profile TSSOP-8 package



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	$V_{DSS}$	-12	V
Gate to Source Voltage	$V_{GS}$	$\pm 8$	V
Drain Current Continuous (Note 1)	$I_D$	-9	A
Drain Current Pulsed		-50	A
Power Dissipation for Single Operation (Note 1a)	$P_D$	1.3	W
Power Dissipation for Single Operation (Note 1b)		0.6	
Operating and Storage Temperature	$T_J, T_{STG}$	-55 to 150	$^\circ C$
Thermal Resistance Junction to Ambient (Note 1a)	$R_{\theta JA}$	87	$^\circ C/W$
Thermal Resistance Junction to Ambient (Note 1b)	$R_{\theta JA}$	114	$^\circ C/W$

## KDW258P

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	VGS = 0 V, ID = -250 $\mu$ A	-12			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BVDSS}{\Delta T_J}$	ID = -250 $\mu$ A, Referenced to 25°C		-3		mV/°C
Zero Gate Voltage Drain Current	IDSS	VDS = -10 V, VGS = 0 V			-1	$\mu$ A
Gate-Body Leakage, Forward	IGSSF	VGS = 8V, VDS = 0 V			100	nA
Gate-Body Leakage, Reverse	IGSSR	VGS = -8 V, VDS = 0 V			-100	nA
Gate Threshold Voltage(Not 2)	VGS(th)	VDS = VGS, ID = -250 $\mu$ A	-0.4	-0.6	-1.5	V
Gate Threshold Voltage Temperature Coefficient(Not 2)	$\frac{\Delta VGS(th)}{\Delta T_J}$	ID = -250 $\mu$ A, Referenced to 25°C		3		mV/°C
Static Drain-Source On-Resistance(Not 2)	RDS(on)	VGS = -4.5 V, ID = -9 A		8.6	11	m $\Omega$
		VGS = -2.5 V, ID = -8 A		10.6	14	
		VGS = -1.8 V, ID = -6.5 A		13.8	20	
		VGS = -4.5 V, ID = -9 A, TJ = 125°C		11.2	14	
On-State Drain Current	ID(on)	VGS = -4.5 V, VDS = -5V	-50			A
Forward Transconductance	gFS	VDS = -5 V, ID = -9A		50		S
Input Capacitance	Ciss	VDS = -5 V, VGS = 0 V, f = 1.0 MHz		5049		pF
Output Capacitance	Coss			1943		pF
Reverse Transfer Capacitance	Crss			1226		pF
Turn-On Delay Time	td(on)			17	31	ns
Turn-On Rise Time	tr	VDD = -6 V, ID = -1 A, VGS = -4.5 V, RGEN = 6 $\Omega$ (Note 2)		23	37	ns
Turn-Off Delay Time	td(off)			201	322	ns
Turn-Off Fall Time	tf			148	237	ns
Total Gate Charge	Qg	VDS = -6 V, ID = -9 A, VGS = -4.5V (Note 2)		61	73	nC
Gate-Source Charge	Qgs			8		nC
Gate-Drain Charge	Qgd			16		nC
Maximum Continuous Drain-Source Diode Forward Current	IS				-1.25	A
Drain-Source Diode Forward Voltage	VSD	VGS = 0 V, IS = -1.25A (Not 2)		-0.6	-1.2	V

## Notes:

1. R<sub>thJA</sub> is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. R<sub>thJC</sub> is guaranteed by design while R<sub>thCA</sub> is determined by the user's board design.



a) 87°C/W when mounted on a 1in<sup>2</sup> pad of 2 oz copper.



b) 114°C/W when mounted on a minimum pad of 2 oz copper.

Scale 1 : 1 on letter size paper

2. Pulse Test: Pulse Width < 300 $\mu$ s, Duty Cycle < 2.0%

## ■ Marking

Marking	258P
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