

General Description

The WSK92P06 is the highest performance trench P-ch MOSFETs with extreme high cell density , which provide excellent RDSON and gate charge for most of the synchronous buck converter applications .

The WSK92P06 meet the RoHS and Green Product requirement , 100% EAS guaranteed with full function reliability approved.

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

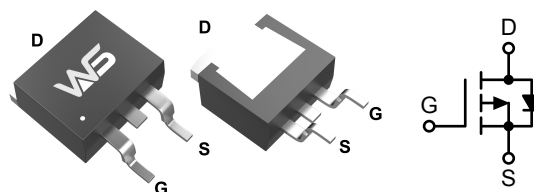
Product Summery

BV_{DSS}	$R_{DS(on)}$	I_D
-60V	10mΩ	-90A

Applications

- Power Management
- Load Switch

TO-263-2L Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, $-V_{GS} @ -10V$	-90	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current, $-V_{GS} @ -10V$	-40	A
I_{DM}	Pulsed Drain Current	-190	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	96	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	---	62	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	1.3	$^{\circ}C/W$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-18A$	---	10	14	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-12A$	---	13	18	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1.1	-1.8	-2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-48V$, $V_{GS}=0V$, $T_J=25^\circ\text{C}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
Q_g	Total Gate Charge	$V_{DS}=-30V$, $V_{GS}=-10V$, $I_D=-17A$	---	89	---	nC
Q_{gs}	Gate-Source Charge		---	12	---	
Q_{gd}	Gate-Drain Charge		---	32	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-30V$, $R_L=30\Omega$, $I_D=-1A$, $V_{GEN}=-10V$, $R_g=6\Omega$	---	15	---	ns
T_r	Rise Time		---	13	---	
$T_{d(off)}$	Turn-Off Delay Time		---	110	---	
T_f	Fall Time		---	60	---	
C_{iss}	Input Capacitance	$V_{DS}=-30V$, $V_{GS}=0V$, $f=1.0\text{MHz}$	---	4066	---	pF
C_{oss}	Output Capacitance		---	501	---	
C_{rss}	Reverse Transfer Capacitance		---	291	---	

Diode Characteristics

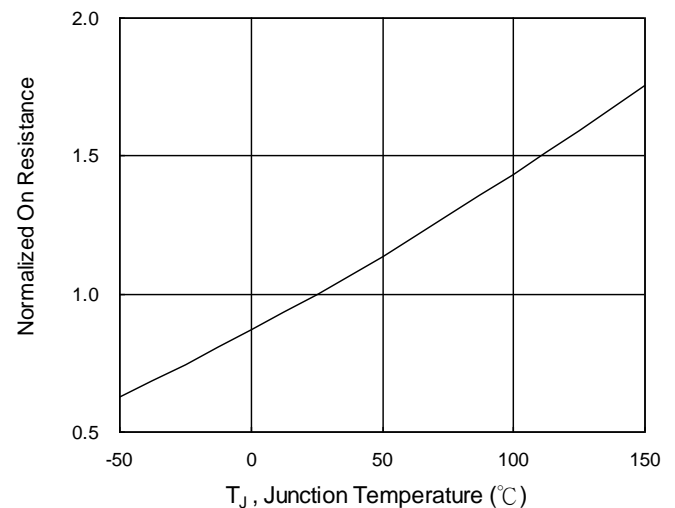
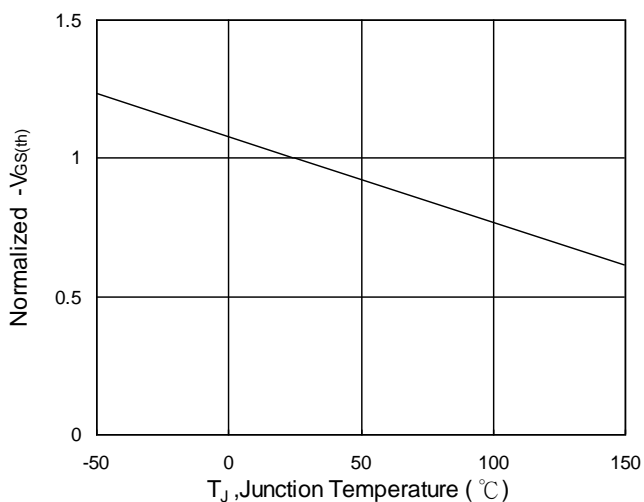
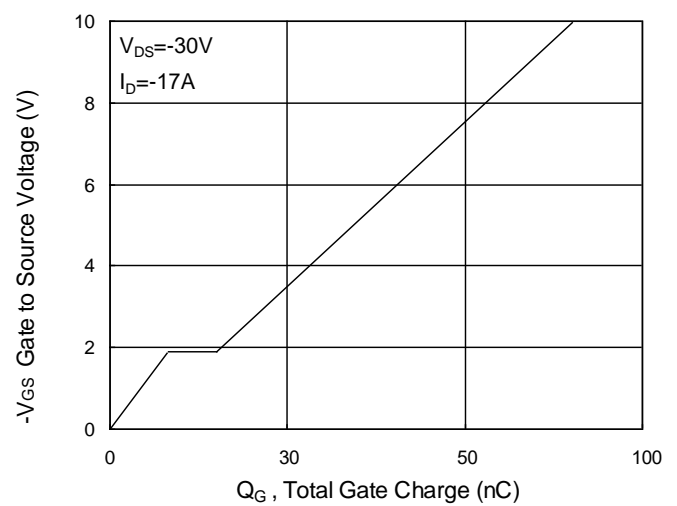
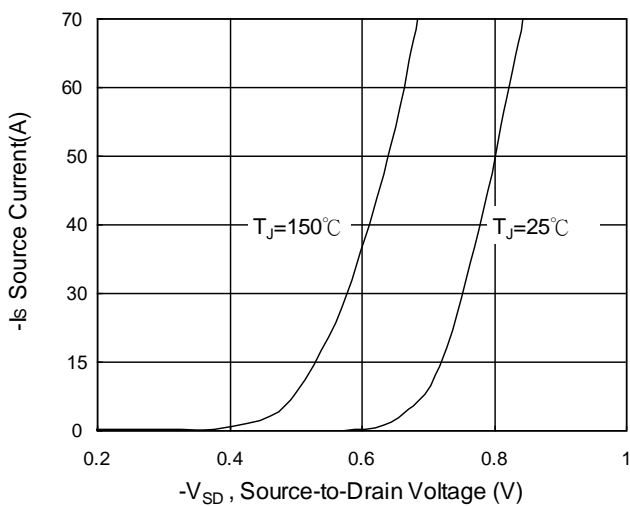
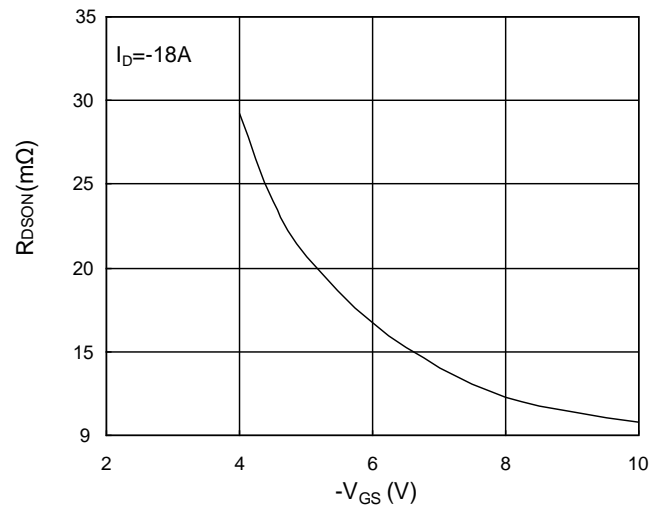
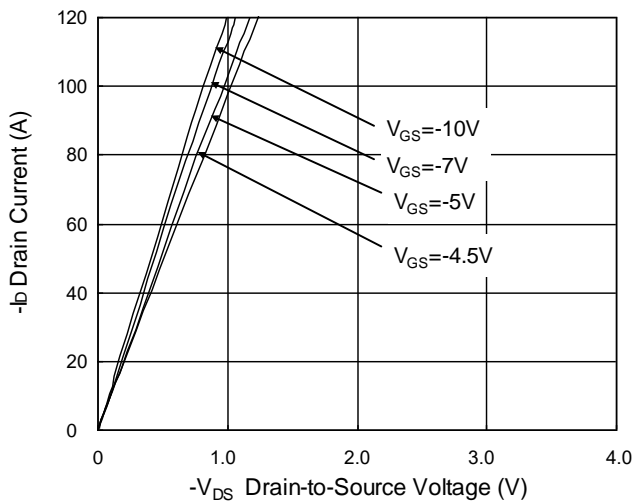
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$T_C=25^\circ\text{C}$	---	---	-40	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-1A$, $T_J=25^\circ\text{C}$	---	---	-1.2	V

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 $\leq 10s$ junction to ambient thermal resistance rating.

Typical Characteristics



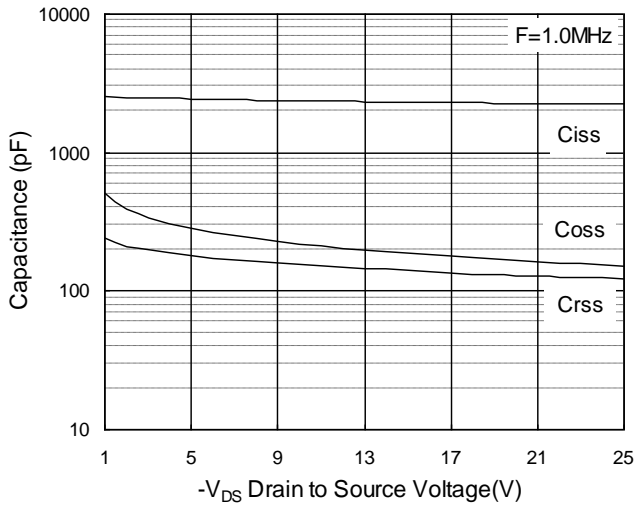


Fig.7 Capacitance

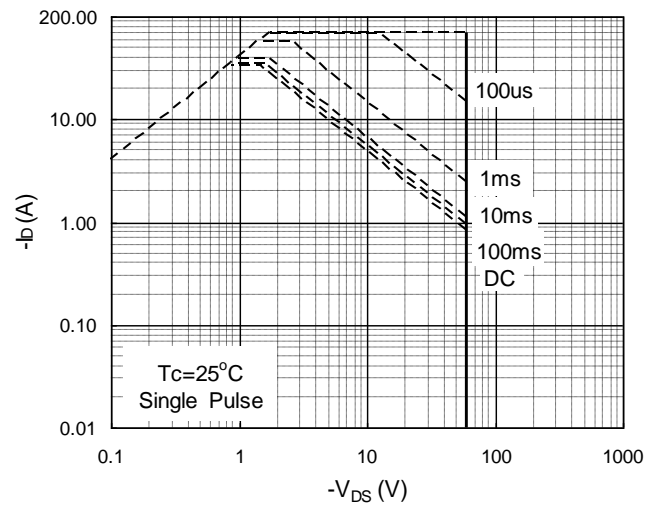


Fig.8 Safe Operating Area

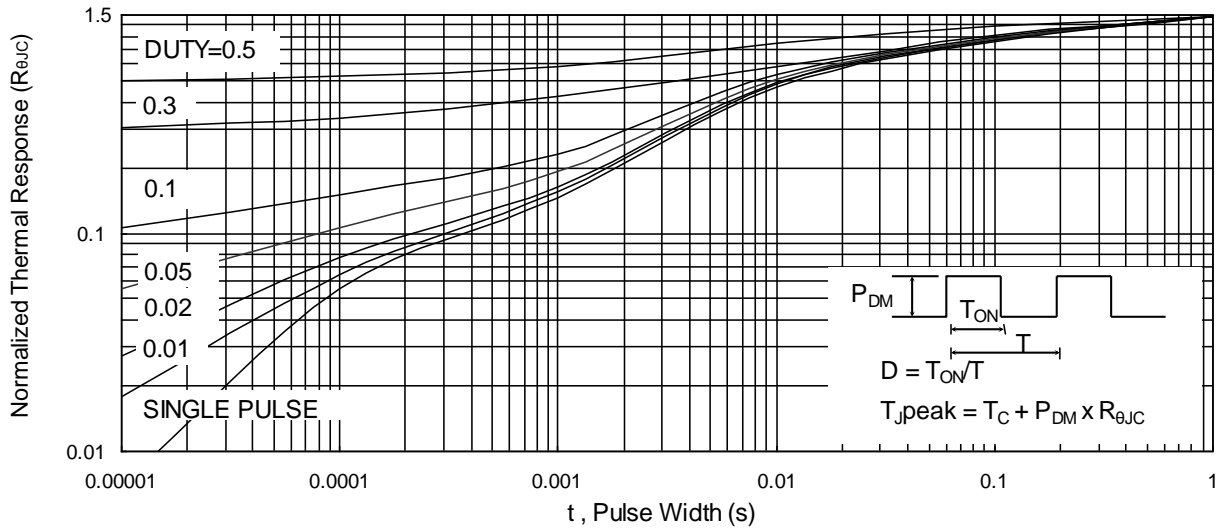


Fig.9 Normalized Maximum Transient Thermal Impedance

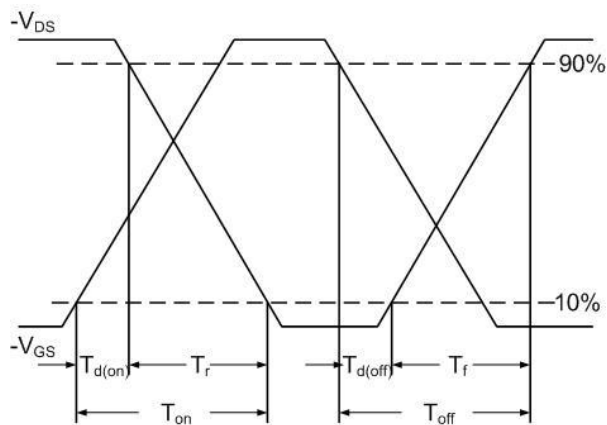


Fig.10 Switching Time Waveform

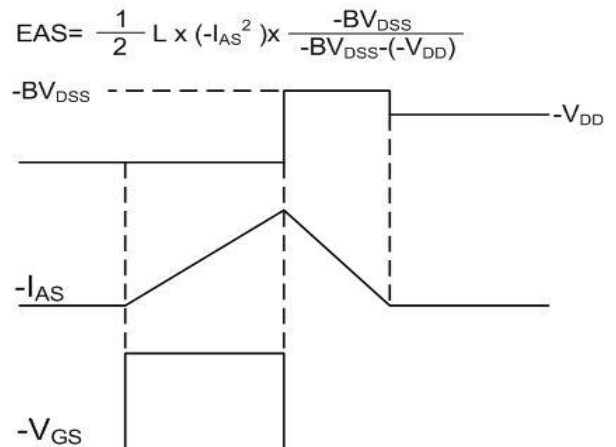
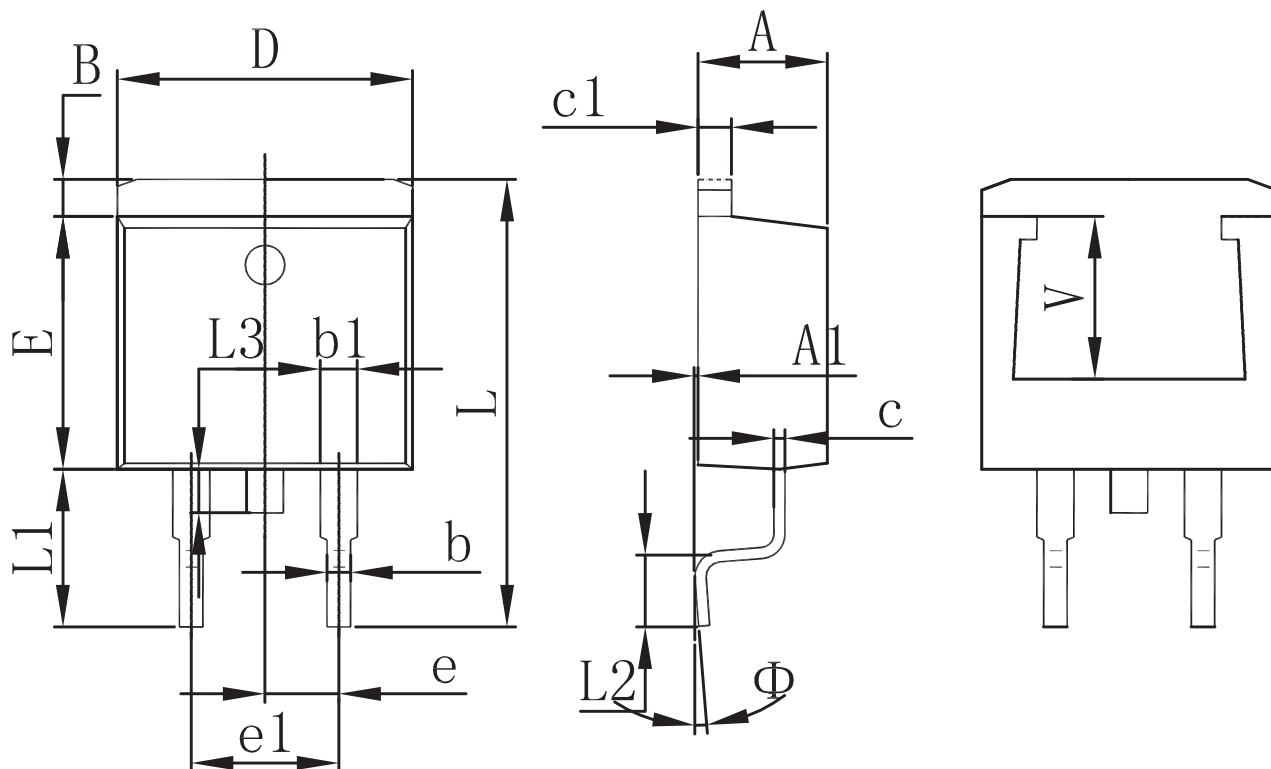


Fig.11 Unclamped Inductive Waveform

Packaging information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220REF.	

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