

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

Product Summary

RoHS

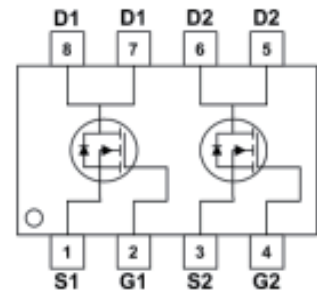
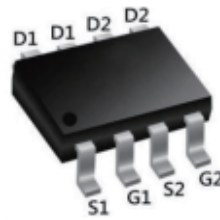
BVDSS	RDS(on)	ID
60V	12mΩ	15A

Description

The S15V06S is the high cell density trenched N-ch MOSFETs, which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications.

The S15V06S meet the RoHS and Green Product, requirement 100% EAS guaranteed with full function reliability approved.

Dual SOP8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Max.	Unit	
V _{DSS}	Drain-Source Voltage	60	V	
V _{GSS}	Gate-Source Voltage	±20	V	
I _D	Continuous Drain Current	T _C = 25°C	15	A
		T _C = 100°C	29	A
I _{DM}	Pulsed Drain Current <small>note1</small>	180	A	
E _{AS}	Single Pulsed Avalanche Energy <small>note2</small>	36	mJ	
P _D	Power Dissipation	T _C = 25°C	60	W
R _{θJC}	Thermal Resistance, Junction to Case	2.5	°C/W	
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +175	°C	

Electrical Characteristics (T_J=25 °C unless otherwise specified)

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V,	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note3</small>	V _{GS} =10V, I _D =20A	-	12	15	mΩ
		V _{GS} =4.5V, I _D =10A	-	15	20	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	930	-	pF
C _{oss}	Output Capacitance		-	230	-	pF
C _{riss}	Reverse Transfer Capacitance		-	8	-	pF
Q _g	Total Gate Charge	V _{DS} =30V, I _D =20A, V _{GS} =10V	-	22	-	nC
Q _{gs}	Gate-Source Charge		-	4.5	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	3.5	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =20A, R _G =1.6Ω, V _{GS} =10V	-	4.5	-	ns
t _r	Turn-on Rise Time		-	2.7	-	ns
t _{d(off)}	Turn-off Delay Time		-	13.8	-	ns
t _f	Turn-off Fall Time		-	2.7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	15	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	180	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =30A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	T _J =25°C , I _F =20A, dI/dt=100A/μs	-	18	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	12	-	nC

Note :

- 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2.EAS condition: T_J=25°C, V_{DD}=30V, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=12A
- 3.Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%

Typical Performance Characteristics

Figure 1: Output Characteristics

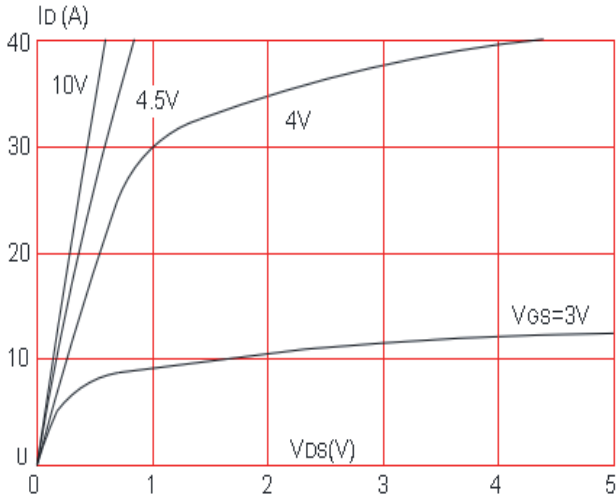


Figure 2: Typical Transfer Characteristics

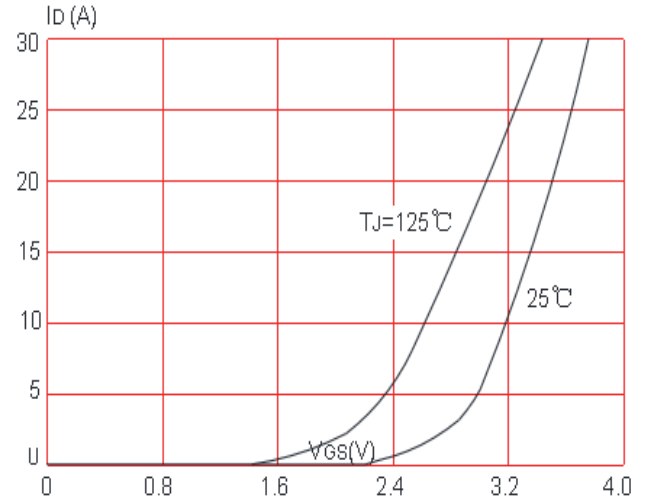


Figure 3: On-resistance vs. Drain Current

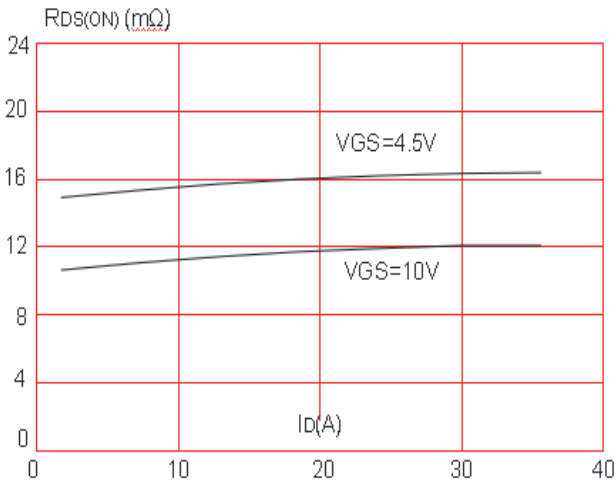


Figure 4: Body Diode Characteristics

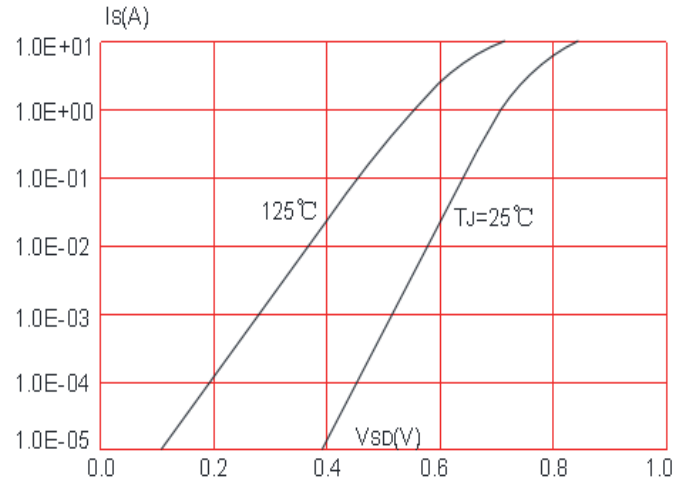


Figure 5: Gate Charge Characteristics

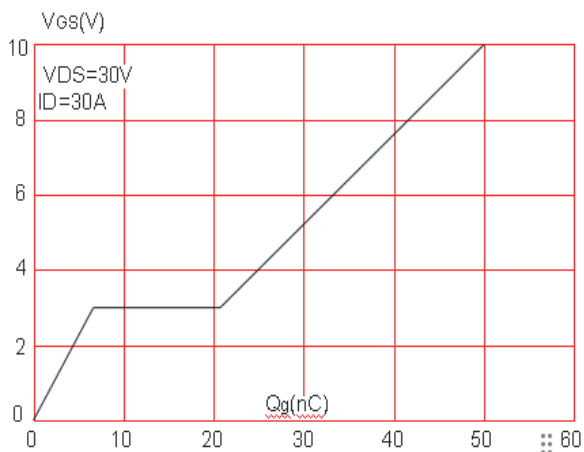
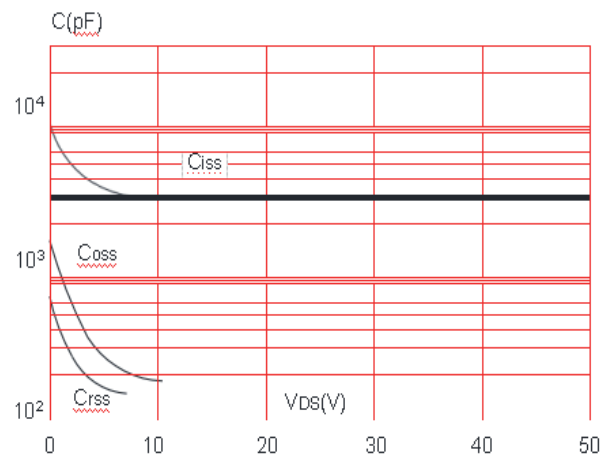


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown Voltage

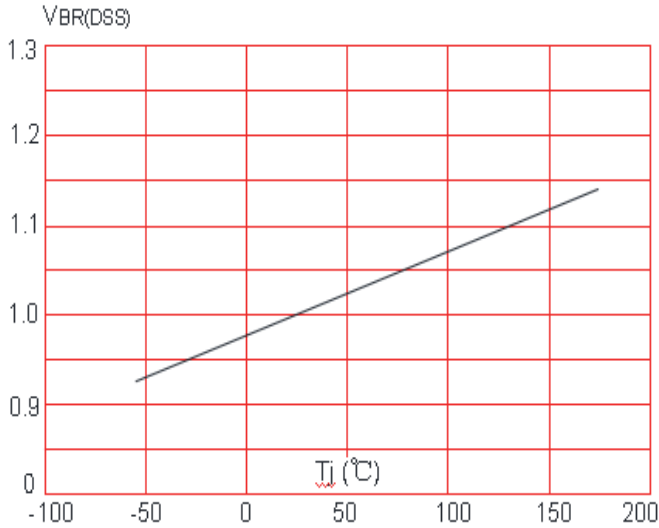


Figure 8: Normalized on Resistance vs. Junction Temperature

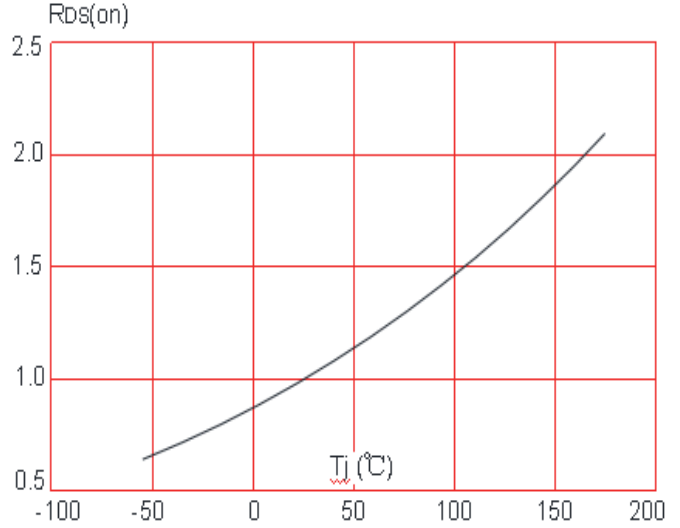


Figure 9: Maximum Safe Operating Area

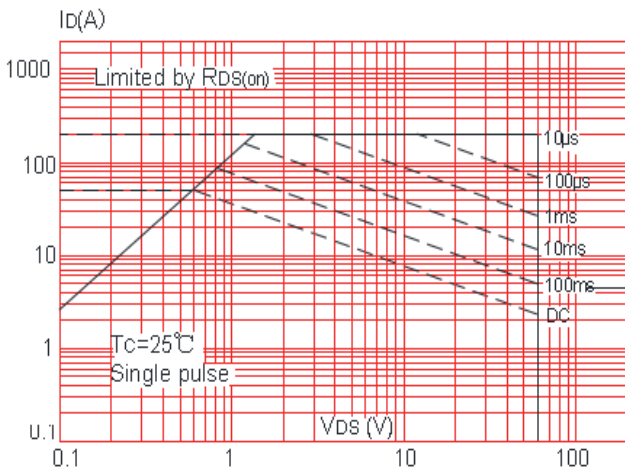


Figure 10: Maximum Continuous Drain Current vs. Junction Temperature

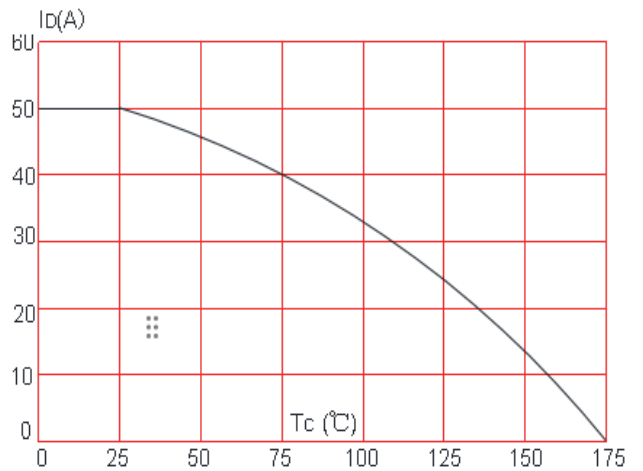
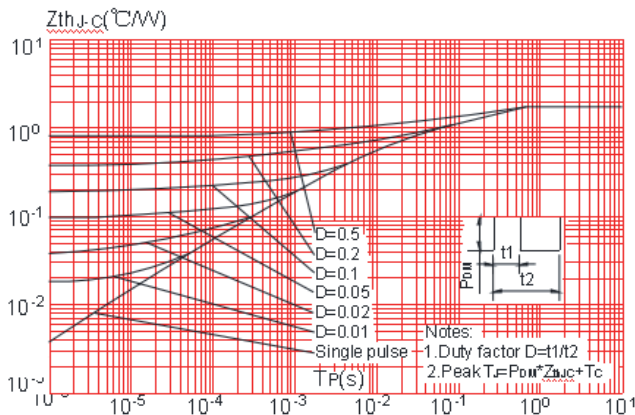
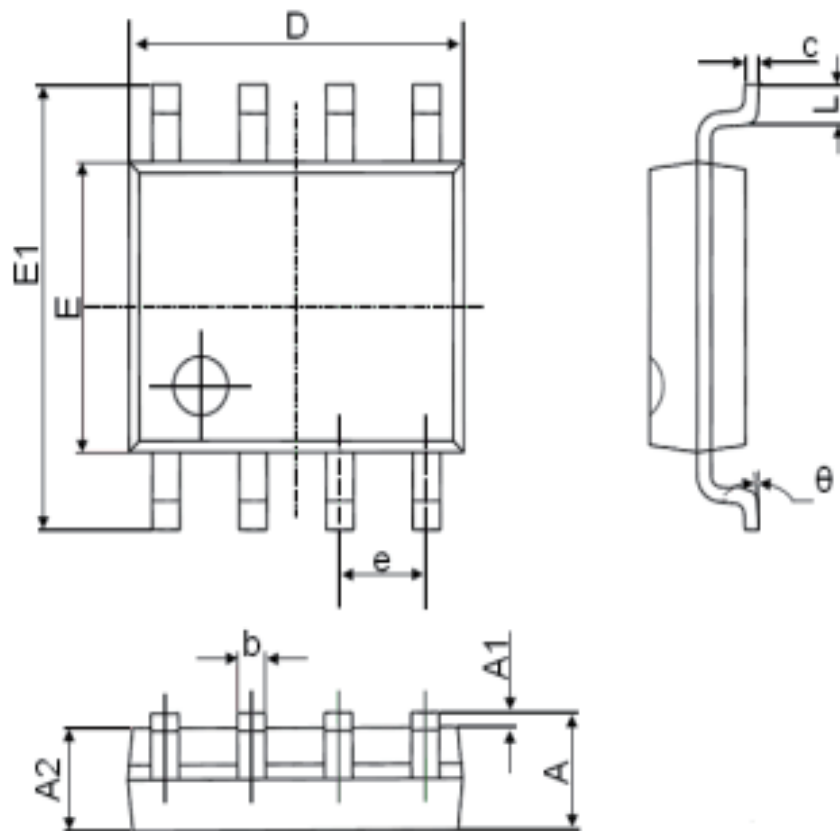


Figure 11: Maximum Effective Transient Thermal Impedance



Package Mechanical Data- SOP-8



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°