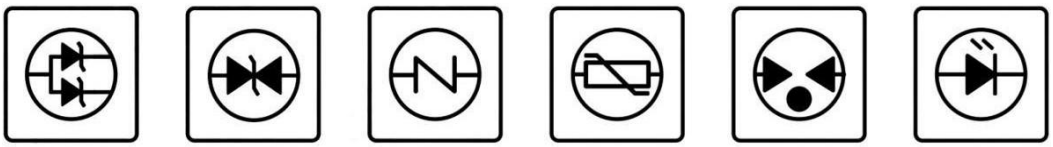
MSKSEMI 美森科
SEMICONDUCTOR



5P06-MS

Product specification

Description

The 5P06-MS is the high cell density trenched P-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The 5P06-MS meet the RoHS and Green Productrequirement with full function reliability approved.

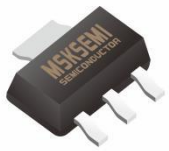
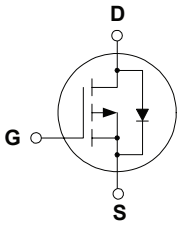
Product Summary

BVDSS	-60V
RDSON	110mΩ
ID	-5A

FEATURE

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

Reference News

PACKAGE OUTLINE	PIN CONFIGURATION	Marking
 SOT-223		MSKSEMI 5P06 MS

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DS}	-60	V
Gate-Source voltage	V_{GS}	±20	
Continuous Drain Current	I_D	-5.0	A
Pulsed Drain Current[1]	I_{DM}	-5.2	A
Power Dissipation	P_D	1	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ 150	°C
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JA}$	125	°C/W

Electrical Characteristics (T =25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=-250μA	-60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current(T_A=25℃)	V_{DS}=-60V, V_{GS}=0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T_A=125℃)	V_{DS}=-60V, V_{GS}=0V	--	--	-100	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1.0	-1.5	-2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=-10V, I_D=-2A	--	110	180	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=-4.5V, I_D=-1A	--	150	200	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=-30V, V_{GS}=0V, f=1MHz	--	310	--	pF
C_{oss}	Output Capacitance		--	22	--	pF
C_{rss}	Reverse Transfer Capacitance		--	15	--	pF
Q_g	Total Gate Charge	V_{DS}=-30V I_D=-2A, V_{GS}=-10V	--	5.4	--	nC
Q_{gs}	Gate Source Charge		--	1.1	--	nC
Q_{gd}	Gate Drain Charge		--	1.6	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn on Delay Time	V_{DD}=-30V, I_D=-2A, R_G=3.3Ω, V_{GS}=-10V	--	41	--	ns
t_r	Turn on Rise Time		--	22	--	ns
$t_{d(off)}$	Turn Off Delay Time		-	25	--	ns
t_f	Turn Off Fall Time		--	32	--	ns
Source Drain Diode Characteristics						
I_{SD}	Source drain current(Body Diode)	T_A=25℃	--	--	-2.0	A
V_{SD}	Forward on voltage②	T_j=25℃, I_{SD}=-2A, V_{GS}=0V	--	-0.84	-1.2	V

Typical Characteristics

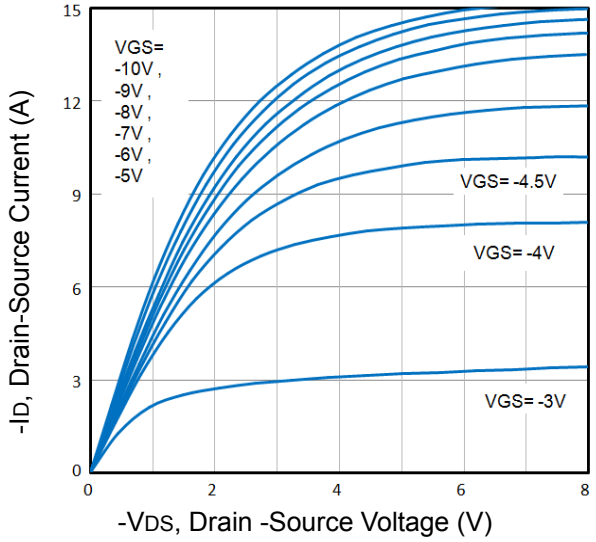


Fig1. Typical Output Characteristics

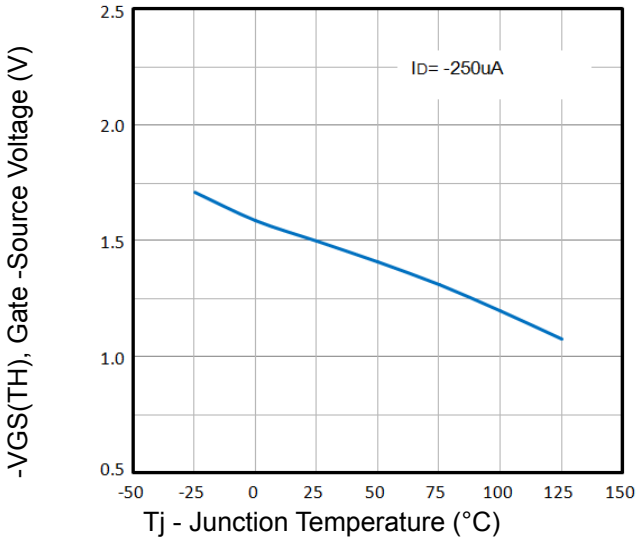


Fig2. Normalized Threshold Voltage Vs. Temperature

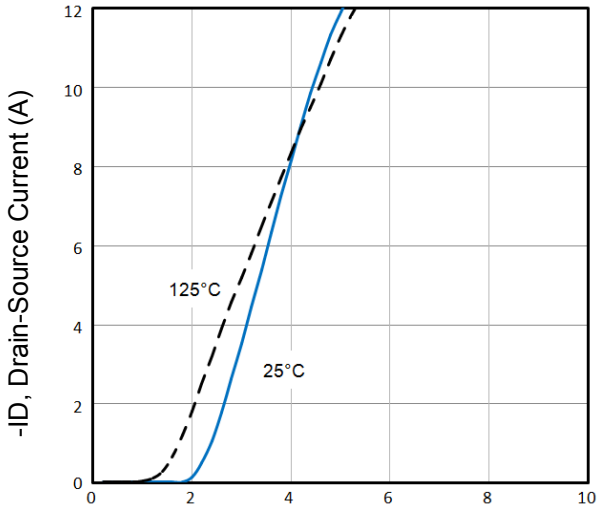


Fig3. Typical Transfer Characteristics

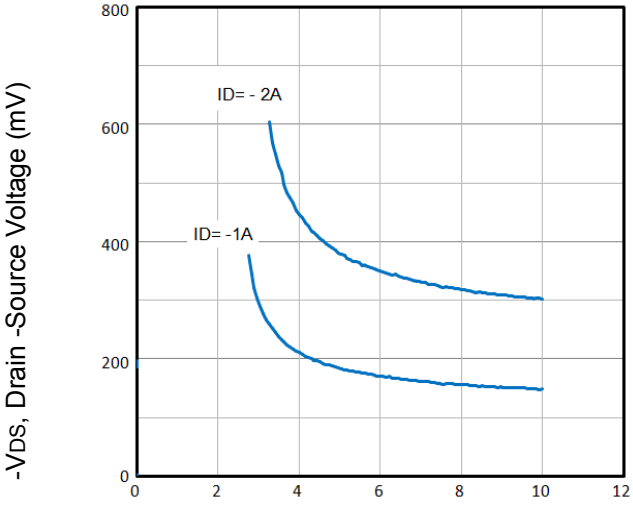


Fig4. Drain -Source Voltage vs Gate -Source Voltage

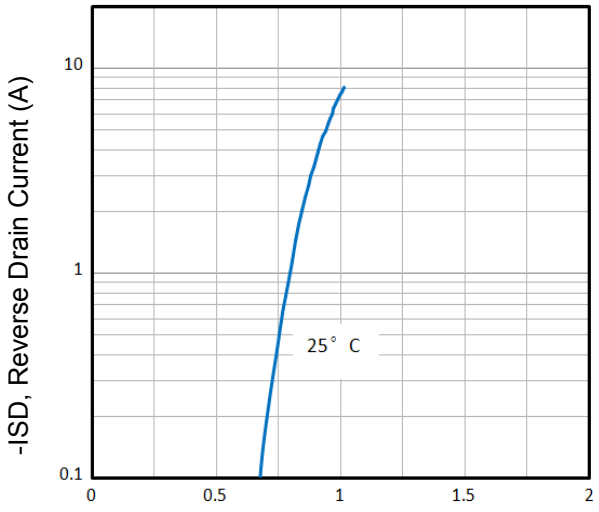


Fig5. Typical Source-Drain Diode Forward Voltage

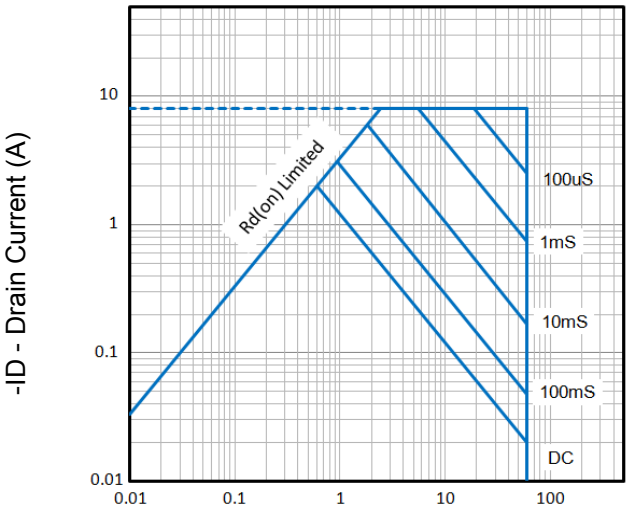


Fig6. Maximum Safe Operating Area

Typical Characteristics

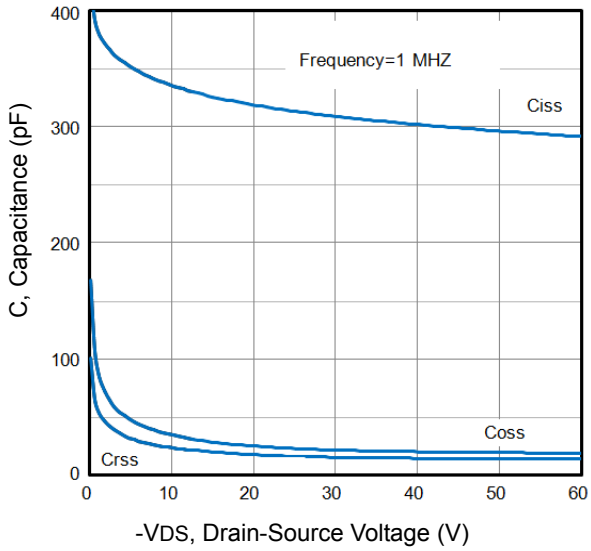


Fig7. Typical Capacitance Vs. Drain-Source Voltage

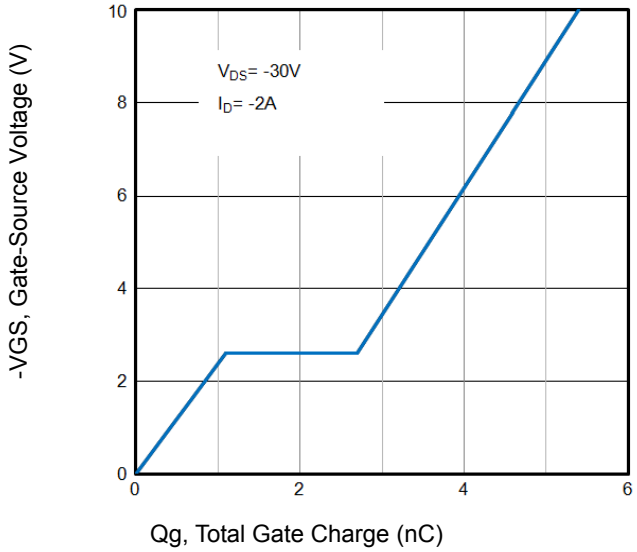


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

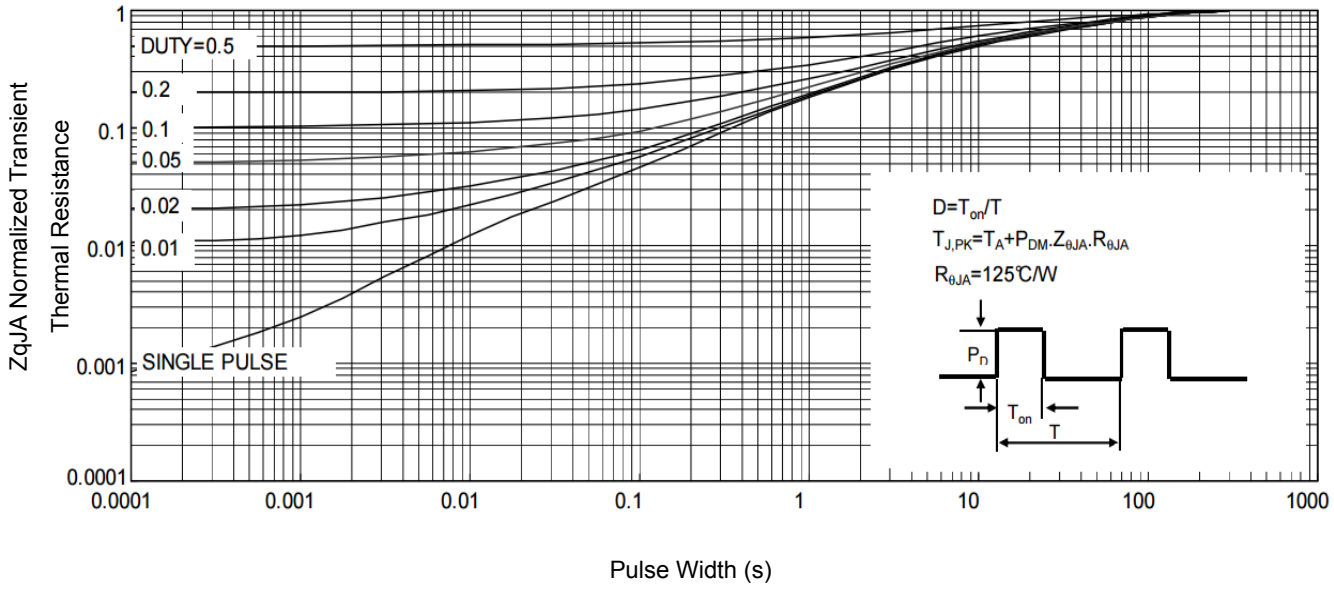


Fig9. Normalized Maximum Transient Thermal Impedance

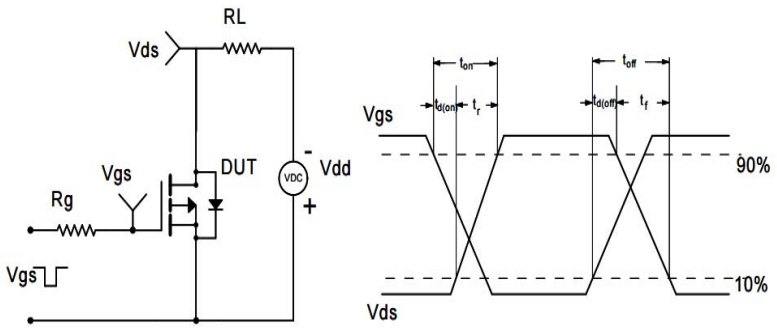
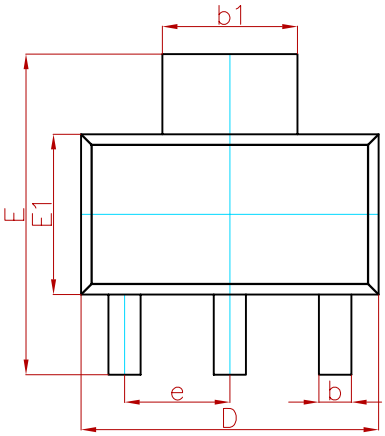
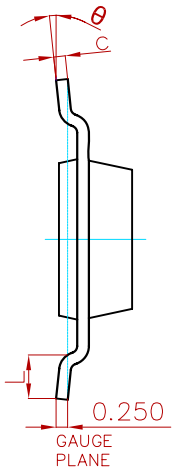
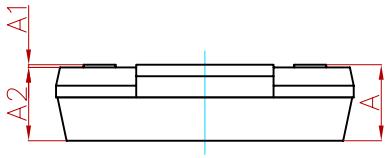


Fig10. Switching Time Test Circuit and waveforms

PACKAGE MECHANICAL DATA

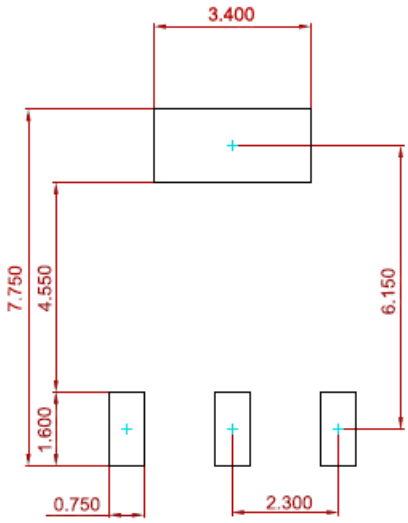






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	——	1.800	——	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	——	0.030	——
θ	0°	10°	0°	10°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.050mm.
3.The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
5P06-MS	SOT-223	1000

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