

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
900V	2.1Ω@10V	0.5A



合肥矽普半导体

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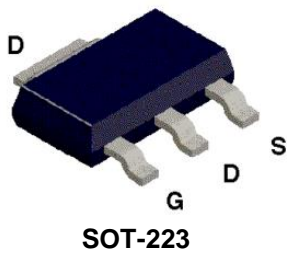
Feature

- Low On-Resistance
- Fast Switching Speed
- Ultra-fast Body Diode.
- Extremely Low Losses Due to Very Low FOM $R_{dson} * Q_g$ and E_{oss} .
- Very High Commutation Ruggedness.

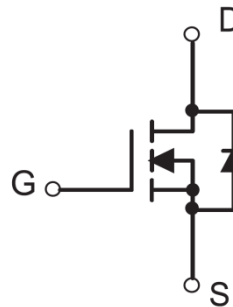
Application

- DC-AC Inverters
- PC power.
- Telecom/Sever.
- Solar Invertor.

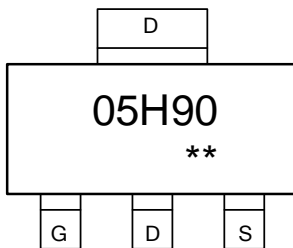
Package



Circuit diagram



Marking



05H90 : Product code
** : Week code.

Order Information

Device	Package	Unite/Tape
SP05H90TC	SOT-223	4000

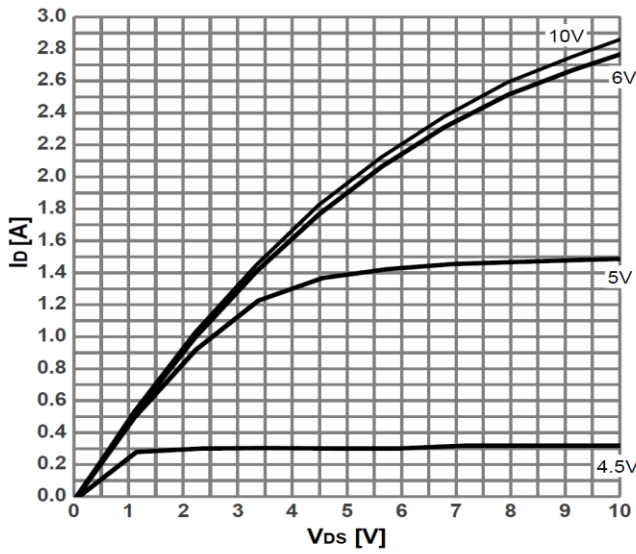
Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	900	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current(Package Limit)	I_D	0.5	A
Pulsed Drain Current	I_{DM}	2	
Maximum Power Dissipation	P_D	4.2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	29.8	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	

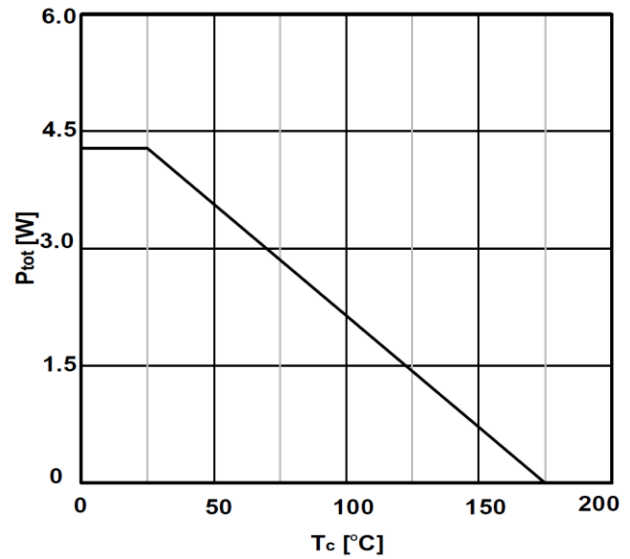
Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	900			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 900V, V_{GS} = 0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0	3.0	4.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 0.2A$		2.1	2.5	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		382		pF
Output Capacitance	C_{oss}			18		
Reverse Transfer Capacitance	C_{rss}			2.5		
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 5.6A$		15		nC
Gate-Source Charge	Q_{gs}			1.4		
Gate-Drain Charge	Q_{gd}			13		
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 15V, I_D = 1.5A, R_L = 2.6\Omega, R_{GEN} = 3\Omega$		78		ns
Turn-On Rise Time	t_r			19		
Turn-Off Delay Time	$t_{d(off)}$			28		
Turn-Off Fall Time	t_f			31		
Source-Drain Diode characteristics						
Body Diode Voltage	V_{SD}	$I_S = 1A, V_{GS} = 0V$			1.2	V

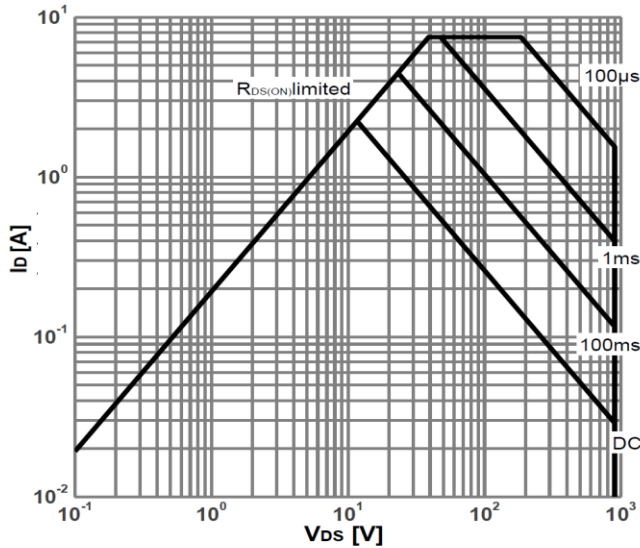
Typical Characteristics



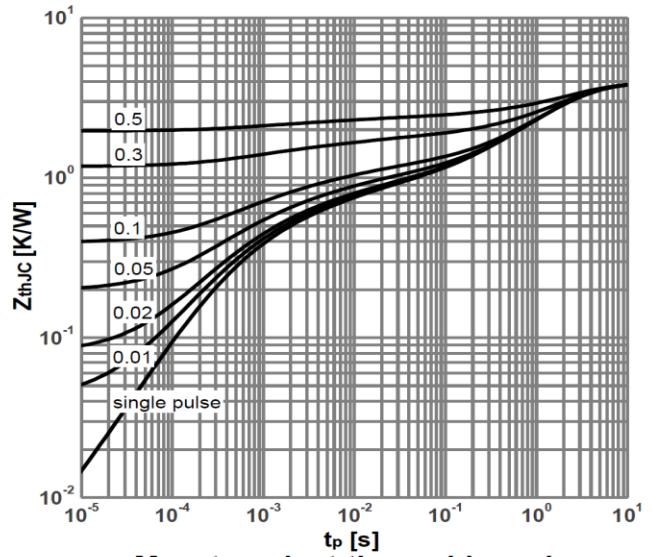
Output characteristics



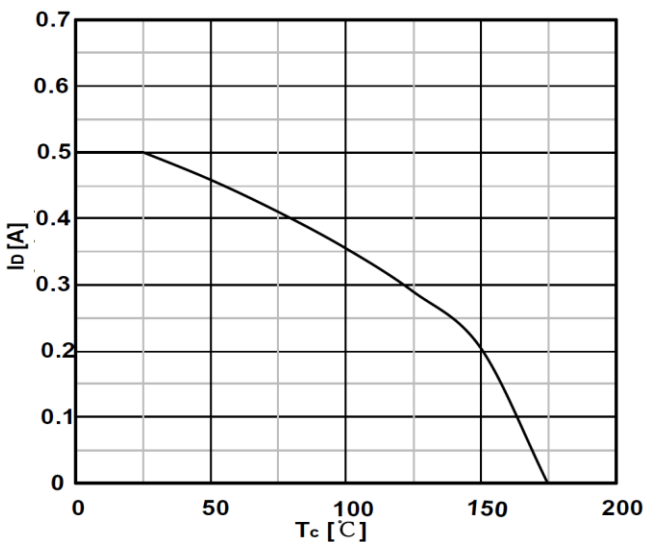
Power dissipation



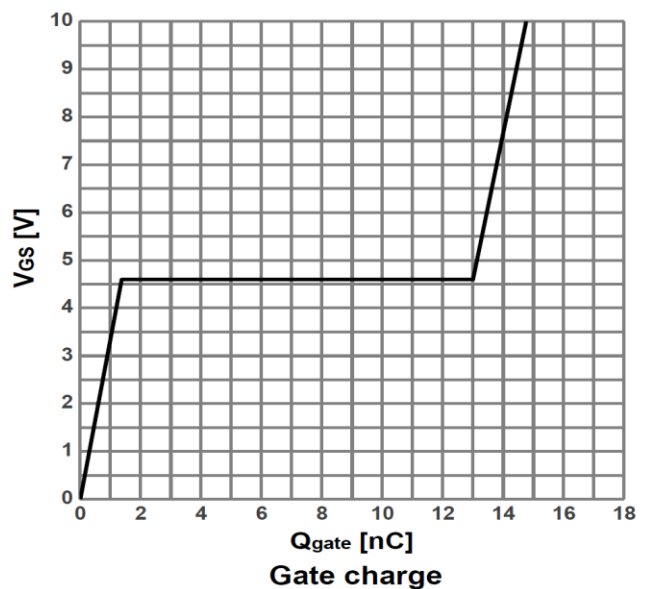
Safe operating area



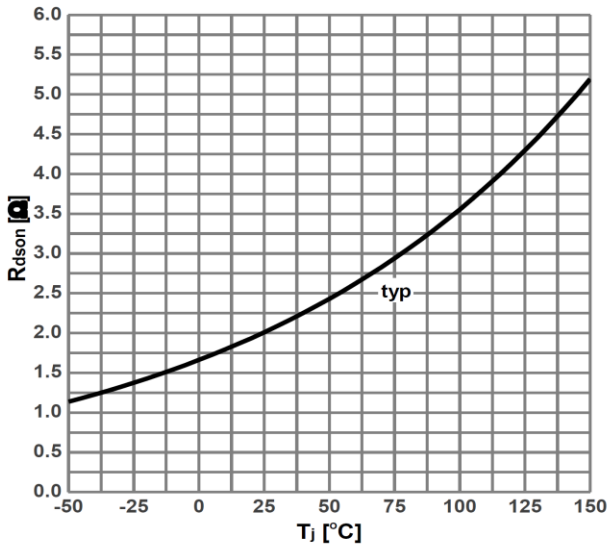
Max. transient thermal impedance



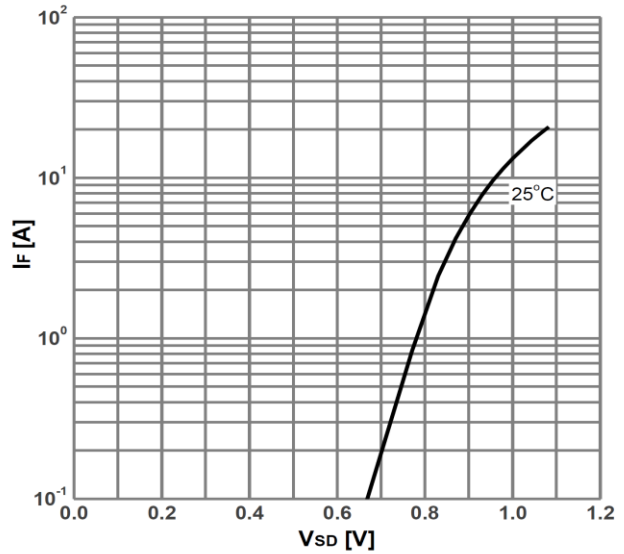
Current dissipation



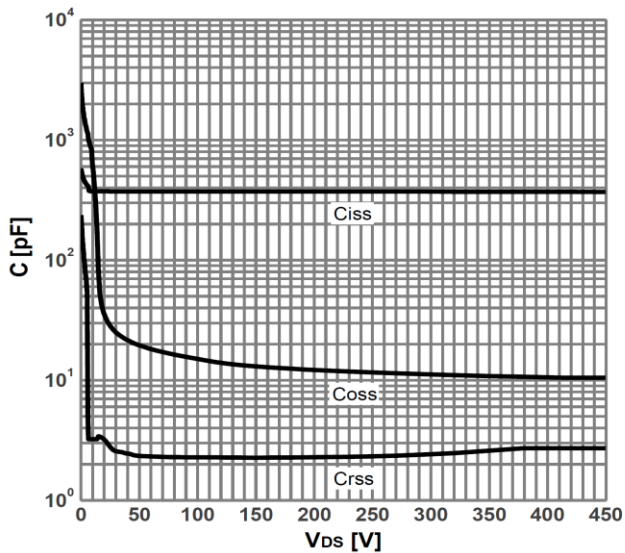
Gate charge



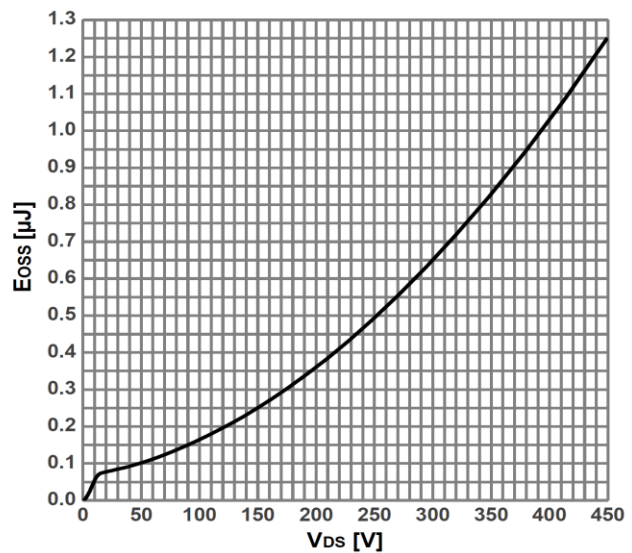
Drain-source on-state resistance



Forward characteristics of reverse diode

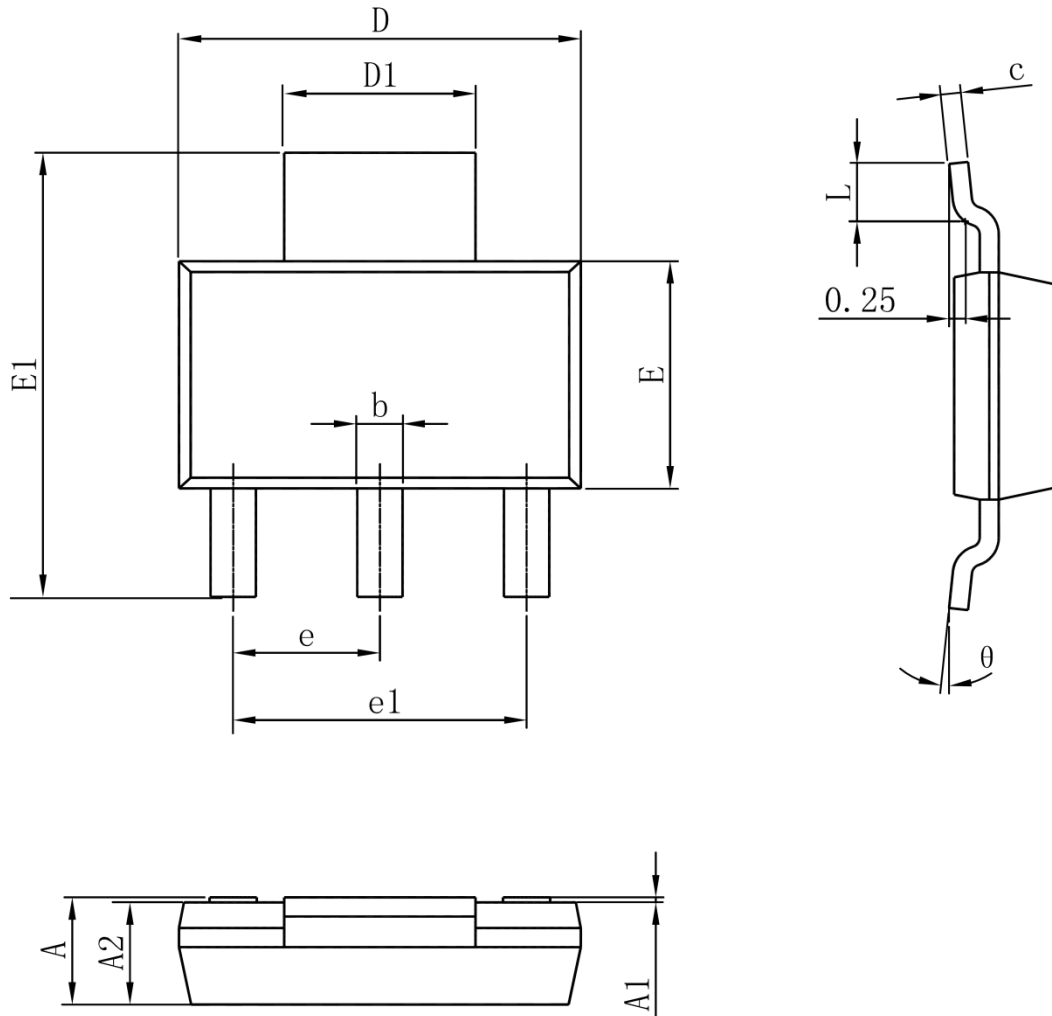


Capacitances



Coss stored energy

SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°

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