

SE20P03

P-Channel MOSFET

Revision: A

General Description

This series is a high voltage power MOSFET and is designed to have better characteristics, such as fast switching time, low gate charge, low on-state resistance and have a high rugged avalanche characteristics

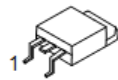
Features

For a single MOSFET

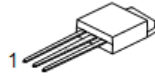
- $V_{DS} = -30V$
- $R_{DS(ON)} = 50m\Omega @ V_{GS} = -10V$

Pin configurations

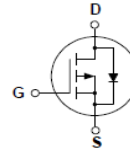
See Diagram below



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Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	Continuous	I_D	-19	A
	Pulsed		-57	
Power Dissipation		P_D	30	W
Operating Junction Temperature Range		T_J	-55 to 150	$^{\circ}C$

Thermal Resistance

Symbol	Parameter	Typ	Max	Units
$R_{\theta JA}$	Junction to Ambient		71.4	$^{\circ}C/W$

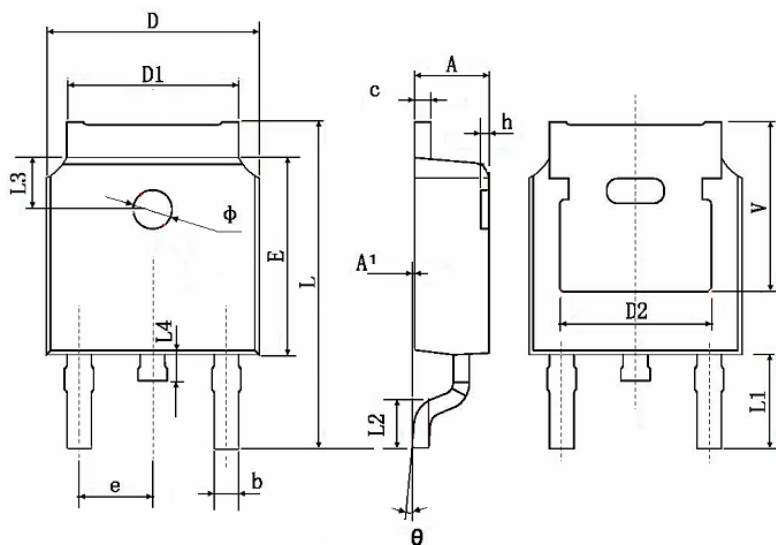
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Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS (Note 2)						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30			V
I _{DSS}	Drain to Source Leakage Current	V _{DS} = -30V, V _{GS} =0V			-10	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =20V			100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =-250μA	-1		-3	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-10A			50	mΩ
		V _{GS} =-4.5V, I _D =-5A			90	mΩ
g _{FS}	Forward Transconductance	V _{DS} =-8V, I _D =-9.5A		6		S
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-25V, f=1MHz		750		pF
C _{oss}	Output Capacitance			345		pF
C _{rss}	Reverse Transfer Capacitance			110		pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge ²	V _{GS} =-5V, V _{DS} =-24V, I _D =-19A		15	21	nC
Q _{gs}	Gate Source Charge			3.4		nC
Q _{gd}	Gate Drain Charge			9.7		nC
t _{d(on)}	Turn-On Delay Time	V _{DS} =-15V, R _{GEN} =3.3Ω I _D =-19A		16		ns
t _{d(off)}	Turn-Off Delay Time			25		ns
t _{d(r)}	Turn-On Rise Time			125		ns
t _{d(f)}	Turn-Off Fall Time			68		ns
Source-Drain Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =-19A			-3.4	V
I _S	Continuous Source Current	V _G =V _D =0V,			-19	A
I _{SM}	Pulsed Source Current	Force Current			-57	A

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Package Outline Dimension

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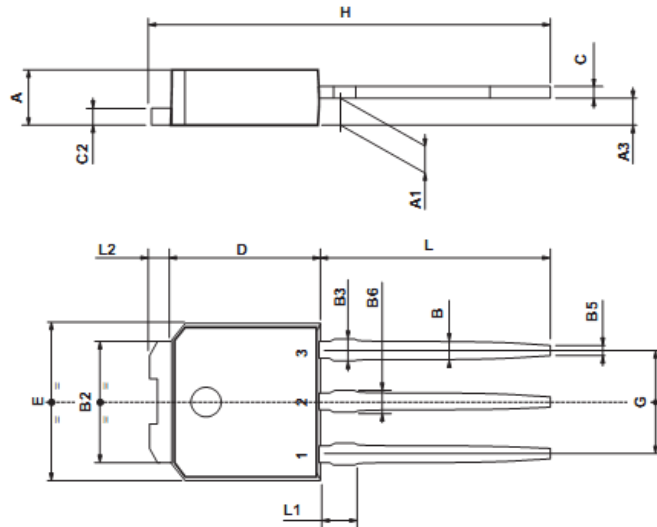


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	0.483 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	

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Package Outline Dimension

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DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A3	0.7		1.3	0.027		0.051
B	0.64		0.9	0.025		0.031
B2	5.2		5.4	0.204		0.212
B3			0.85			0.033
B5		0.3			0.012	
B6			0.95			0.037
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	15.9		16.3	0.626		0.641
L	9		9.4	0.354		0.370
L1	0.8		1.2	0.031		0.047
L2		0.8	1		0.031	0.039

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