

SE60P20B

P-Channel Enhancement-Mode MOSFET

Revision: A

General Description

Thigh Density Cell Design For Ultra Low On-Resistance Fully Characterized Avalanche Voltage and Current Improved Shoot-Through FOM

- Simple Drive Requirement
- Small Package Outline
- Surface Mount Device

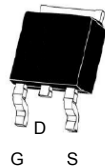
Features

For a single MOSFET

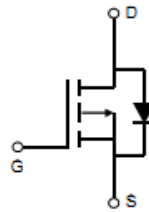
- $V_{DS} = -60V$
- $R_{DS(ON)} = 26m\Omega @ V_{GS}=-10V$

Pin configurations

See Diagram below



TO-252



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	Continuous	I_D	-20	A
	Pulsed		-80	
Total Power Dissipation	@TA=25°C	P_D	170	W
Operating Junction Temperature Range		T_J	-55 to 150	°C

SE60P20B

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	I _D =-250μA, V _{GS} =0V	-60			V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =-60V, V _{GS} =0V			1	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		-2.5	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-10A	-	26	33	mΩ
g _{FS}	Forward Transconductance	V _{DS} =-25V, I _D =-10A	19			S
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-25V, f=1MHz		3500		pF
C _{oss}	Output Capacitance			1250		pF
C _{rss}	Reverse Transfer Capacitance			450		pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge ²	V _{GS} =-10V, V _{DS} =-30V, I _D =-42A		120	180	nC
Q _{gs}	Gate Source Charge			32		nC
Q _{gd}	Gate Drain Charge			53		nC
t _{d(on)}	Turn-On Delay Time	V _{GS} =-10V, V _{DS} =-30V, R _{GEN} =2.6Ω I _D =-42A		20		ns
t _{d(off)}	Turn-Off Delay Time			51		ns
t _{d(r)}	Turn-On Rise Time			99		ns
t _{d(f)}	Turn-Off Fall Time			64		ns
Thermal Resistance						
Symbol	Parameter		Typ	Max	Units	
R _{θJC}	Junction to Case		-	3.6	°C/W	

Typical Characteristics

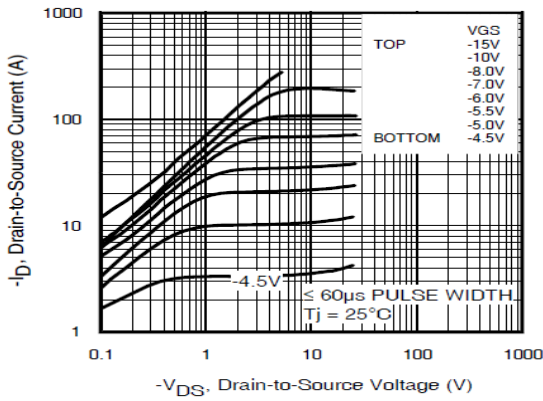


Fig 1. Typical Output Characteristics

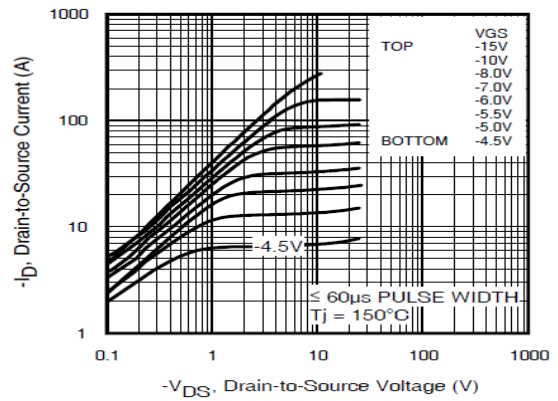


Fig 2. Typical Output Characteristics

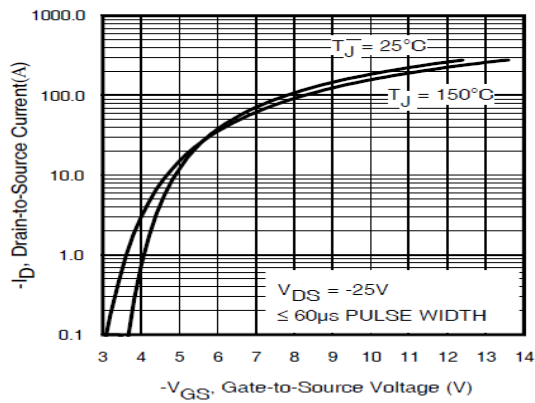


Fig 3. Typical Transfer Characteristics

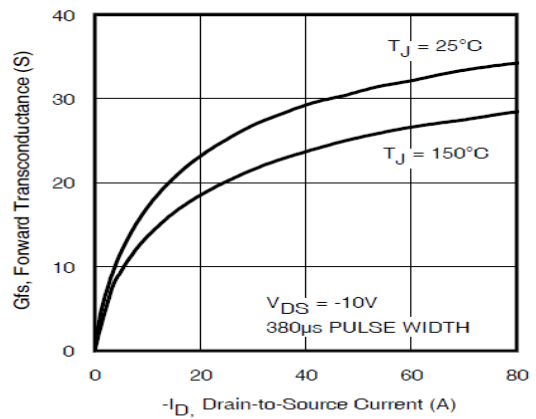


Fig 4. Typical Forward Transconductance Vs. Drain Current

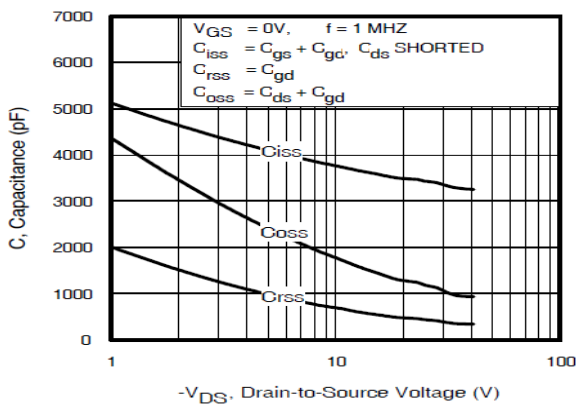


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

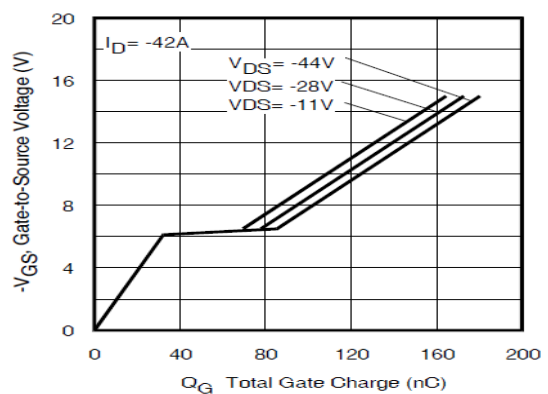


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

Typical Characteristics

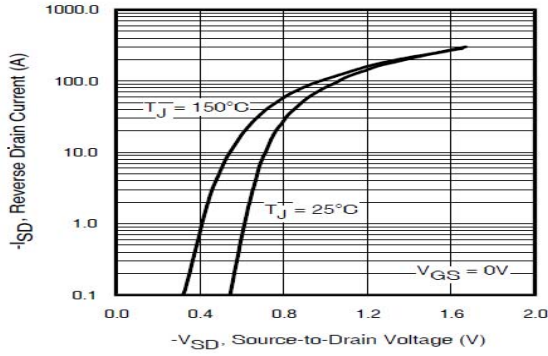


Fig 7. Typical Source-Drain Diode Forward Voltage

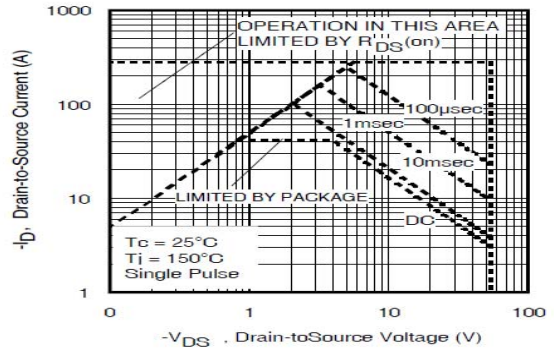


Fig 8. Maximum Safe Operating Area

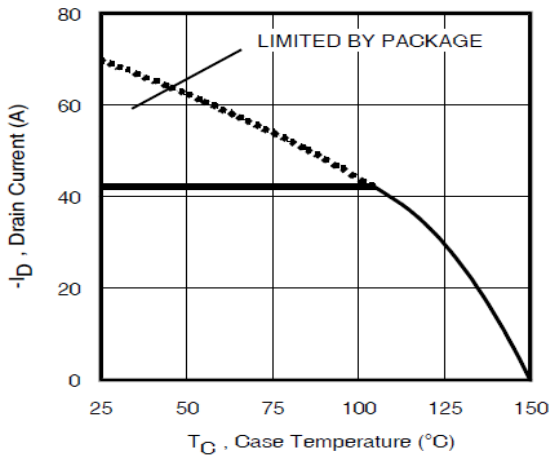


Fig 9. Maximum Drain Current Vs. Case Temperature

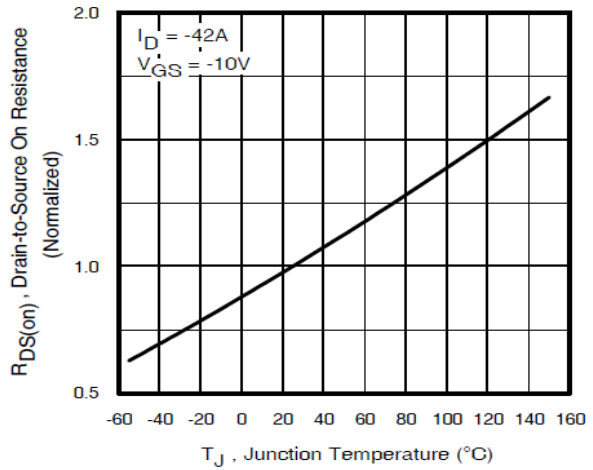


Fig 10. Normalized On-Resistance Vs. Temperature

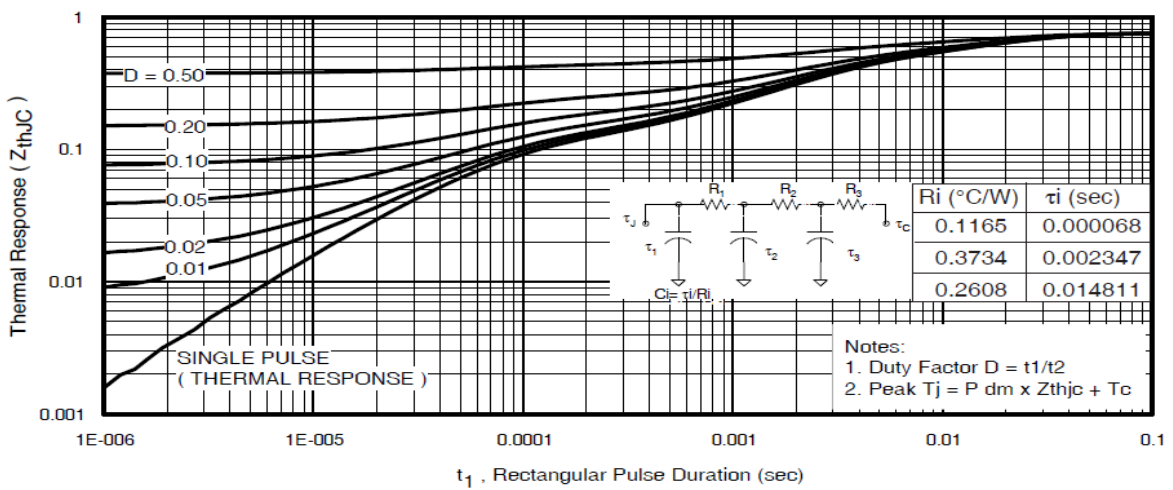
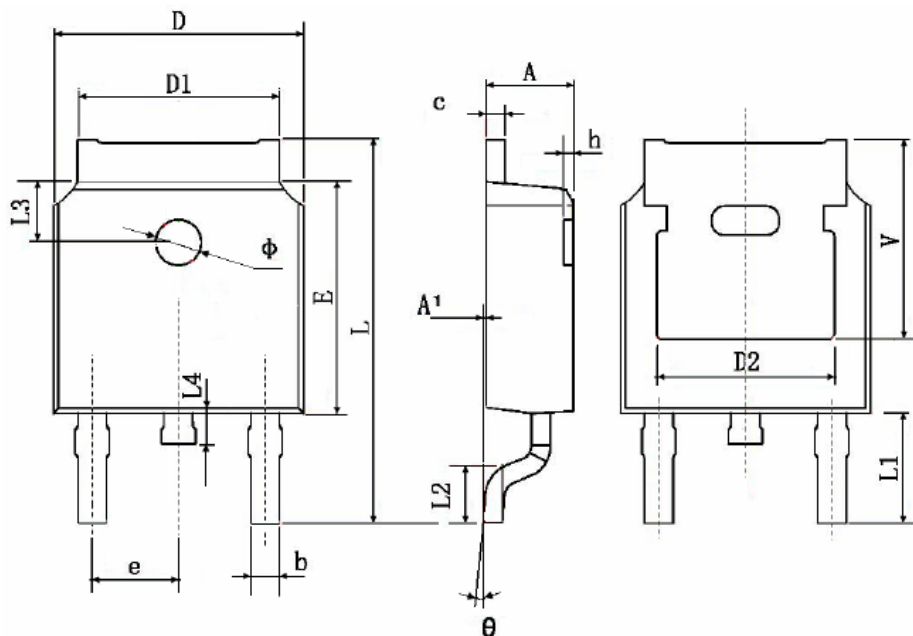


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case

SE60P20B

Package Outline Dimension

TO-252



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	4.830 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.	

**The SINO-IC logo is a registered trademark of ShangHai Sino-IC Microelectronics Co., Ltd.
© 2005 SINO-IC – Printed in China – All rights reserved.**

SHANGHAI SINO-IC MICROELECTRONICS CO., LTD

Add: Building 3, Room 3401-03, No.200 Zhangheng Road, ZhangJiang Hi-Tech Park, Pudong,
Shanghai 201203, China

Phone: +86-21-33932402 33932403 33932405 33933508 33933608

Fax: +86-21-33932401

Email: webmaster@sino-ic.net

Website: <http://www.sino-ic.net>