SEMITRONICS CORP.

64 Commercial Street, Freeport, N.Y. 11520
Phone: (516) 623-9400 • Fax. (516) 623-6954

SEF401002

POWER MOSFET

FEATURES

- Isolated Case
- Hermetically Sealed Package
- Fast Switching
- Low $R_{DS(on)}$ 0.025 Ohms
- High Current & High Power
- MIL STX Screening Available

APPLICATIONS

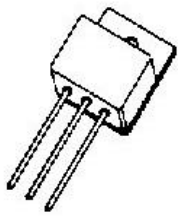
- High Reliability Power Supplies
- Switch Mode Power Supplies
- Battery Back-Up Supplies
- High Speed Power Switching

DESCRIPTION

The SEF401002 is a 67Amp, 100volts, 0.025 ohms. Power Mosfet packaged in three lead hermetically sealed TO-258 metallic package.

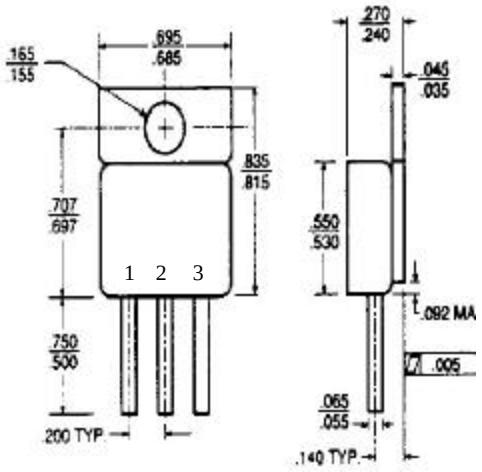
Custom Lead Forming Available
G-D-S Special Pinout Available
Ceramic Feedthroughs Available
Add STX suffix for Military screening

PACKAGE



TO-258AA

CASE OUTLINE



Pin 1: D Pin 2: S Pin 3: G

Absolute Maximum Ratings

Parameter		Maximum	Units
Continuous Drain Current	I_D @ Tc = 25º C,	67	A
Continuous Drain Current	I_{AR} @ Tc = 25ºC	67	A
Pulse Drain Current	I_{DM} @ Tc = 25ºC	268	A
Power Dissipation	P_D @ Tc =25º C	300	W
Gate-to-Source Voltage	V_{GS}	± 20	V
Operating & Storage Temperature	Tj & T_{STG}	-55 to +150	ºC

03/01 RevA

Static @ Tj = 25°C (unless otherwise specified)

Parameter		Min.	Typ.	Max.	Units	Conditions
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	100	—	—-	V	V_{GS} = 0V, I_D = 250uA
Static Drain to Source On-Resistance	$R_{DS(on)}$	—	—	0.025	Ù	V_{GS} = 10V, I_D = 34A
Gate Threshold Voltage	V_{GS}	2.0	—	4	V	V_{DS} = V_{GS}, I_D = 250uA
Drain-to-Source Leakage Current	I_{DSS}	—	—	200	uA	V_{DS} = 80V, V_{GS} = 0V
		—	—	1000		V_{DS} = 80V, V_{GS} = 0V, Tj =125°C
Gate-to-Source Forward Leakage	I_{GSS}	—	—	100	nA	V_{GS} = 20V
Gate-to-Source Forward Leakage	I_{GSS}	—	—	-100		V_{GS} = -20V

Dynamic @ Tj = 25°C (unless otherwise specified)

Parameter		Min.	Typ.	Max.	Units	Conditions
Forward Transconductance	gfs	25	30	—	S	V_{DS} = 10V, I_D = 34A pulse
Total Gate Charge	Qg	—	180	260	nC	I_D = 34A V_{DS} = 50V V_{GS} = 10V
Gate-to-Source Charge	Qgs	—	30	70		
Gate-to-Drain (“Miller”) charge	Qgd	—	90	160		
Turn-on-Delay Time	$t_{d(on)}$	—	40	60	ns	V_{GS} = 10V V_{DS} = 50V I_D = 34A R_G = 2 Ohms
Rise Time	t_r	—	60	110		
Turn-Off-Delay Time	$t_{d(off)}$	—	100	140		
Fall time	t_f	—	30	60		
Input Capacitance	C_{iss}	—	4500	—	pF	V_{GS} = 0V V_{DS} = 25V f = 1.0 MHZ
Output Capacitance	C_{oss}	—	1300	—		
Reverse Transfer Capacitance	C_{rss}	—	550	—		

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Thermal Resistance

Parameter		Typ.	Max.	Units
Junction-to-case	$R_{\theta JC}$	—	1.20	°C/W
Case-to-Sink, flat, Greased Surface	$R_{\theta CS}$	0.25	—	

Diode Characteristics

Parameter		Min.	Typ.	Max.	Units	Conditions
Continuous Source Current	I_S	—	—	67	A	Tj = 25°C
Pulsed Source Current	I_{SM}	—	—	268		
Diode Forward Voltage	V_{SD}	—	—	1.75	V	Tj = 25°C, I_S=67A, V_{GS}=0V
Reverse Recovery Time	t_{rr}	—	—	300	ns	Tj = 25°C, I_F=67A,V_R = 100V di/dt = 100A/us

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Fig. 1 Output Characteristics

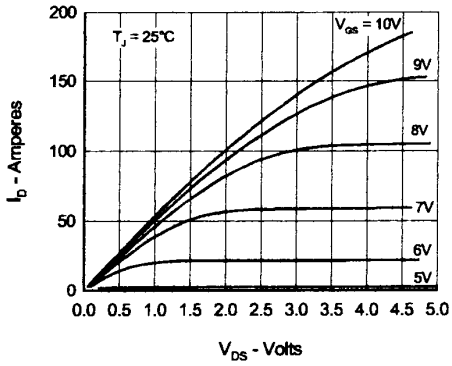

Fig. 2 Input Admittance

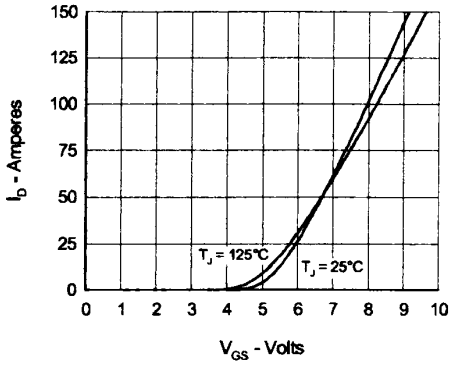

Fig. 3 $R_{DS(on)}$ vs. Drain Current

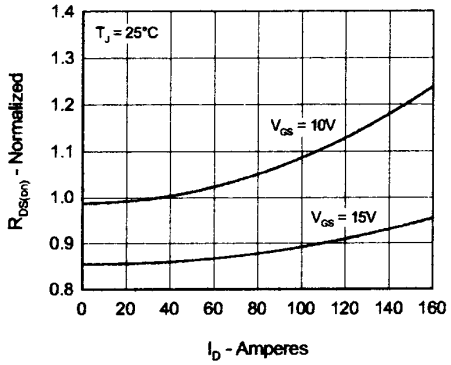

Fig. 4 Temperature Dependence of Drain to Source Resistance

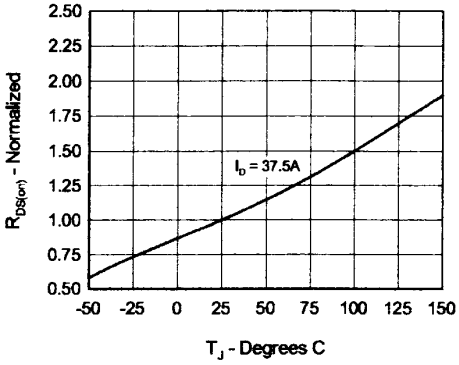

Fig. 5 Drain Current vs. Case Temperature

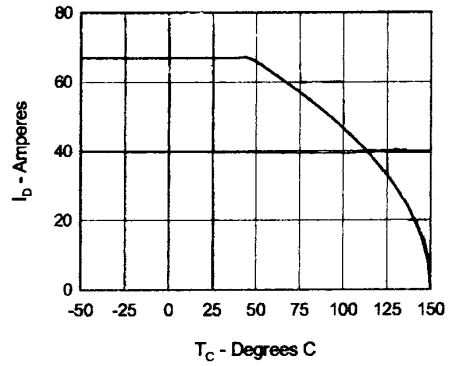

Fig. 6 Temperature Dependence of Breakdown and Threshold Voltage

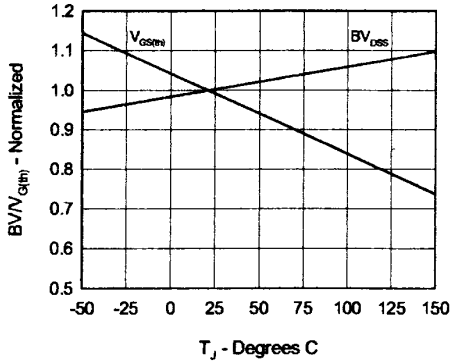

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Fig.7 Gate Charge Characteristic Curve

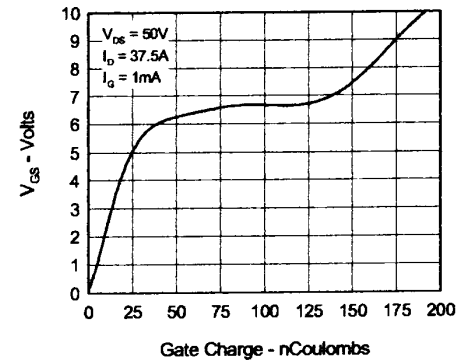


Fig.8 Forward Bias Safe Operating Area

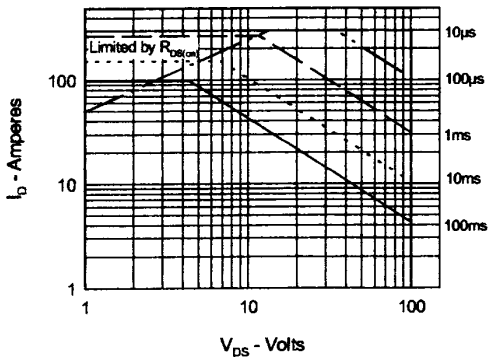


Fig.9 Capacitance Curves

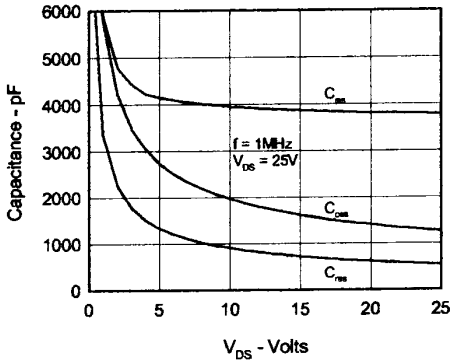


Fig.10 Source Current vs. Source to Drain Voltage

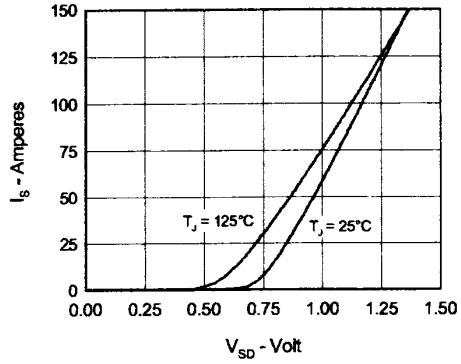
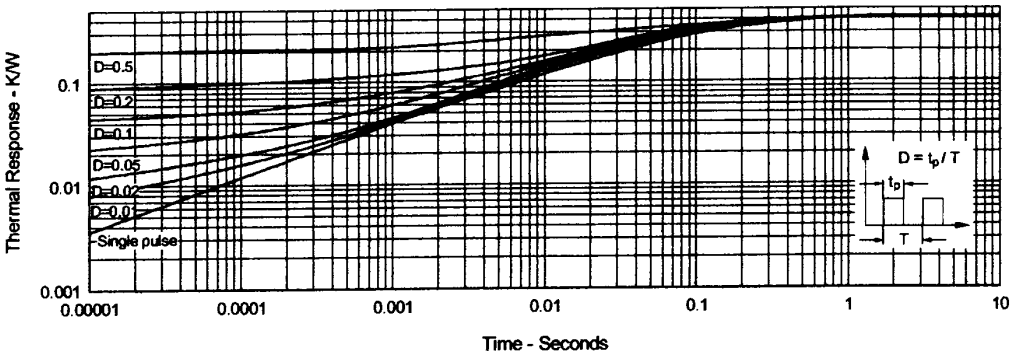


Fig.11 Transient Thermal Impedance



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