

SEMITRONICS CORP.

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SES760

SMPS MOSFET

FEATURES

- Isolated Case
- Hermetically Sealed Package
- Improved Gate, Avalanche and dynamic dv.dt Ruggedness
- Ease of Paralleling
- MIL STX Screening Available

APPLICATIONS

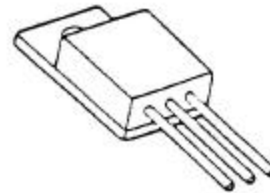
- High Reliability Power Supplies
- Switch Mode Power Supplies
- Battery Back-Up Supplies
- High Speed Power Switching

DESCRIPTION

The SES760 is a 16 Amp, 200 volts, 0.090 ohms. Power Mosfet packaged in three lead hermetically sealed TO-257 metallic package.

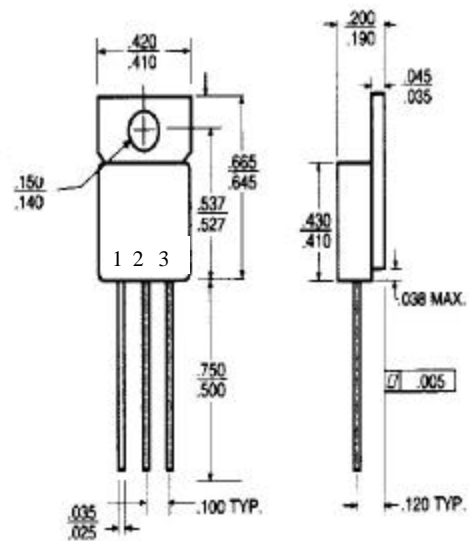
Custom Lead Forming Available
Ceramic Feedthroughs Available
Add STX suffix for Military screening

PACKAGE



TO-257

CASE OUTLINE



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

Absolute Maximum Ratings

Parameter	Maximum	Units
Continuous Drain Current I_p @ $T_c = 25^\circ C$, $V_{GS} @ 10V$	16	A
Continuous Drain Current I_p @ $T_c = 112^\circ C$, $V_{GS} @ 10V$	12	A
Pulse Drain Current I_{DM}	65	A
Power Dissipation $P_D @ T_c = 25^\circ C$	140	W
Linear Derating Factor	1.5	W/ $^\circ C$
Gate-to-Source Voltage V_{GS}	± 20	V
Peak Diode Recovery dv/dt	5.0	V/ns
Operating & Storage Temperature T_j & T_{STG}	-55 to +150	$^\circ C$

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

Parameter	Min.	Typ.	Max.	Units	Conditions
Drain-to-Source Breakdown Voltage $V_{(BR)DSS}$	200	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
Static Drain to Source On-Resistance $R_{DS(on)}$	—	—	0.09	Ohm	$V_{GS} = 10V, I_D = 12A$
Gate Threshold Voltage V_{GS}	2.0	—	4.0	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Drain-to-Source Leakage Current I_{DSS}	—	—	25	uA	$V_{DS} = 200V, V_{GS} = 0V$
	—	—	250		$V_{DS} = 160V, V_{GS} = 0V, T_j = 125^\circ C$
Gate-to-Source Forward Leakage I_{GSS}	—	—	100	nA	$V_{GS} = 20V$
Gate-to-Source Reverse Leakage I_{GSS}	—	—	-100		$V_{GS} = -20V$

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

Parameter	Min.	Typ.	Max.	Units	Conditions	
Forward Transconductance g_{fs}	12	—	—	S	$V_{DS} = 50V, I_D = 16A$	
Total Gate Charge Q_g	—	—	140	nC	$I_D = 16A$ $V_{DS} = 160V$ $V_{GS} = 10V$	
Gate-to-Source Charge Q_{gs}	—	—	28			
Gate-to-Drain ("Miller") charge Q_{gd}	—	—	74			
Turn-on-Delay Time $t_{d(on)}$	—	16	—	ns	$V_{DD} = 100V$ $I_D = 16A$ $R_G = 6.2 \text{ Ohms}$ $R_D = 3.2 \text{ Ohms}$	
Rise Time t_r	—	86	—			
Turn-Off-Delay Time $t_{d(off)}$	—	70	—			
Fall time t_f	—	62	—			
Input Capacitance C_{iss}	—	1423	—	pF	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1.0MHz$	
Output Capacitance C_{oss}	—	208	—			
Reverse Transfer Capacitance C_{rss}	—	8.1	—			
Output Capacitance C_{oss}	—	2000	—			$V_{GS} = 0V, V_{DS} = 1.0V, f = 1.0MHz$
Output Capacitance C_{oss}	—	55	—			$V_{GS} = 0V, V_{DS} = 160V, f = 1.0MHz$
Effective Output Capacitance $C_{oss \text{ eff}}$	—	97	—			$V_{GS} = 0V, V_{DS} = 0V \text{ to } 160V$

Avalanche Characteristics

Parameter		Typ.	Max.	Units
Single Pulse Avalanche Energy	E_{AS}	—	410	mJ
Avalanche Current	I_{AR}	—	20	A
Repetitive Avalanche Energy	E_{AR}	—	19	mJ

Thermal Resistance

Parameter		Typ.	Max.	Units
Junction-to-case	$R_{\theta JC}$	—	1.0	°C/W
Case-to-Sink, flat, Greased Surface	$R_{\theta CS}$	0.50	—	
Junction-to-ambient	$R_{\theta JA}$	—	62	

Diode Characteristics

Parameter		Min.	Typ.	Max.	Units	Conditions
Continuous Source Current	I_S	—	—	18	A	
Pulsed Source Current	I_{SM}	—	—	75		
Diode Forward Voltage	V_{SD}	—	—	2.0	V	$T_j = 25^\circ\text{C}$, $I_S = 16\text{A}$, $V_{GS} = 0\text{V}$
Reverse Recovery Time	t_{rr}	—	360	540	ns	$T_j = 25^\circ\text{C}$, $I_F = 16\text{A}$ $di/dt = 100\text{A}/\mu\text{s}$
Reverse Recovery Charge	Q_{rr}	—	4.6	6.9	uC	
Forward Turn-on Time	t_{on}	Intrinsic turn-on time is negligible				

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