TO-205AF / TO-39

SCF2N6800T2
JANTX2N6800
JANTXV2N6800

REF: MIL-PRF-19500/557

- **N-Channel**
- **400 Volt**
- **< 1.0 Ohms**
- **3 Amp**

POWER MOSFET
FOR RUGGED ENVIRONMENTS

DESCRIPTION

SEMICOA's MOSFET technology is designed for rugged environments providing excellent long term reliability. SEMICOA's long heritage providing military grade technology and packaging allows these devices to be used for ground based telecommunications, vehicles, ships, weapon systems and other application where failure is not an option.

FEATURES

- Available in JANTX and JANTXV equivalent levels
- $R_{DS(ON)}$ < 1000 mΩ
- Simple Drive Requirements
- Low Gate Charge
- Ease of Paralleling
- Hermetically Sealed
- Die Available

ABSOLUTE MAXIMUM RATINGS

	PARAMETER		UNITS
I_D @ V_{GS} = 10 V, T_C = 25° C	Continuous Drain Current	3.0	A
I_D @ V_{GS} = 10 V, T_C = 100° C	Continuous Drain Current	2.0	
IDM	Pulsed Drain Current (1)	14	
PD@ TC = 25° C	Max Power Dissipation	25	W
	Linear Derating Factor	0.20	W/°C
VGS	Gate to Source Voltage	±20	V
EAS	Single Pulse Avalanche Energy (2)	0.51	mJ
IAR	Avalanche Current (1)	-	A
TJ TSTG	Operating Junction Storage Temperature Range	-55 to 150	°C
	Lead Temperature	300	°C
	Weight	O.98 typical	g

For footnotes refer to the last page

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Electrical Characteristics @ TJ 25°C (unless otherwise specific)

	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
BV_{DSS}	Drain to Source Breakdown Voltage	400	-	-	V	VGS = 0 V, ID = 1.0 mA
$\Delta BV_{DSS}/\Delta T_J$	Temperature Coefficient of Breakdown Voltage	-	0.37	-	V/°C	Reference to 25 °C, ID = 1.0 mA
$R_{DS(ON)}$	Static Drain to Source On-State Resistance	-	-	1.00	Ω	VGS = 10 V, ID = 2.0 A (4)
		-	-	1.10		VGS = 10 V, ID = 3.0 A (4)
$V_{GS(th)}$	Gate Threshold Voltage	2.0	-	4.0	V	VDS = VGS, ID = 250 µA
gsf	Forward Transconductance	2.0	-	-	S(℧)	VDS = 15 V, IDS = 2.0 A (4)
I_{DSS}	Zero Gate Voltage Drain Current	-	-	25	µA	VDS = 320 V, VGS = 0V
		-	-	250		VDS = 320 V, VGS=0V, Tj = 125 °C
I_{GSSF}	Gate to Source Leakage Forward			100	nA	VGS = 20 V
I_{GSSR}	Gate to Source Leakage Reverse			-100	nA	VGS = -20 V
Qg	Total Gate Charge	-	-	34.75	nC	VGS = 10 V, ID = 3.0 A , VDS = 200 V
Qgs	Gate to Source Charge	-	-	5.75		
Qgd	Gate to Drain (Miller) Charge	-	-	16.59		
Td(on)	Turn On Delay Time	-	-	30	ns	VDD = 200 V, ID = 3.0 A, RG = 7.5 Ω
Tr	Rise Time	-	-	35		
Td(off)	Turn Off Delay Time	-	-	55		
Tf	Fall time	-	-	35		
C_{ISS}	Input Capacitance	-	-	-	pF	VGS = 0 V, VDS = 25 V, f = 1.0 MHz
C_{OSS}	Output Capacitance	-	-	-		
C_{RSS}	Reverse Transfer Capacitance	-	-	-		

Source-Drain Diode Rating and Characteristics

	PARMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_S	Continuous Source Current (Body Diode)	-	-	3.0	A	
I_{SM}	Pulse Source Current (Body Diode)	-	-	14	A	
V_{SD}	Diode Forward Voltage	-	-	1.4	V	Ti = 25 °C, IF = 3.0 A, VGS = 0 V (4)
Trr	Reverse Recovery Time	-	-	700	nS	Ti = 25 °C, IF = 3.0 A, di/dt ≤ 100 A/µS, VDD ≤ 50 V (4)

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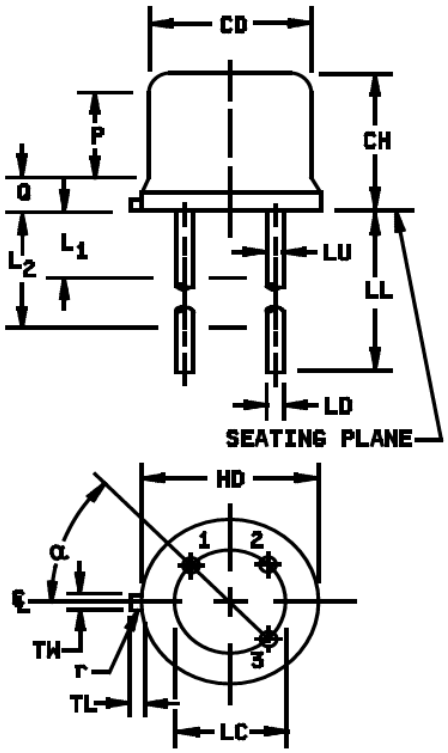
TO-205 AF Case Outline and Dimensions



Pin Assignment	
Lead 1	Source
Lead 2	Gate
Lead 3	Drain

Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	.305	.335	7.75	8.51
CH	.160	.180	4.07	4.57
HD	.335	.370	8.51	9.40
LC	.200 typ		5.08 typ	
LD	.016	.021	0.41	0.53
LL	.500	.750	12.70	19.05
LU	.016	.019	0.41	0.48
L1		.050		1.27
L2	.250		6.35	
P	.100		2.54	
Q		.050		1.27
TL	.029	.045	0.74	1.14
TW	.028	.034	0.71	0.86
r		.010		0.25
α	45° TP		45° TP	

Footnotes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. V_{DD} = 50 V starting T_J = 25 °C, Peak I_L = 3.0A
3. ISD ≤ 3.0A, di/dt ≤ 90 A/µS, VDD ≤ 400 V, Tj ≤ 150°C, Rg = 7.5Ω
4. Pulse width ≤ 300µs; Duty Cycle ≤ 2%

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Data and specification subject to change without notice.

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