

SCF2N7228T1
JANTX2N7228
JANTXV2N7228
REF: MIL-PRF-19500/592

**POWER MOSFET
 FOR RUGGED ENVIRONMENTS**

TO-254AA

- N-Channel
- 500 Volt
- < 0.415 Ohms
- 12 Amp

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
- RDS(ON) < 415 mΩ
- Simple Drive Requirements
- Low Gate Charge
- Ease of Paralleling
- Hermetically Sealed
- Die Available

ABSOLUTE MAXIMUM RATINGS

	PARAMETER		UNITS
Id @ Vgs = 10 V, Tc = 25° C	Continuous Drain Current	12	A
Id @ Vgs = 10 V, Tc = 100° C	Continuous Drain Current	8.0	
IDM	Pulsed Drain Current (1)	48	
PD @ TC = 25° C	Max Power Dissipation	150	W
	Linear Derating Factor	1.2	W/°C
VGS	Gate to Source Voltage	±20	V
EAS	Single Pulse Avalanche Energy (2)	750	mJ
IAR	Avalanche Current (1)	12	A
TJ TSTG	Operating Junction Storage Temperature Range	-55 to 150	°C
	Lead Temperature	300	°C
	Weight	9.3 typical	g

For footnotes refer to the last page



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

	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
BV _{DSS}	Drain to Source Breakdown Voltage	500	-	-	V	V _{GS} = 0 V, I _D = 1.0 mA
ΔBV _{DSS} /ΔT _J	Temperature Coefficient of Breakdown Voltage	-	0.68	-	V/°C	Reference to 25 °C, I _D = 1.0 mA
R _{DS(ON)}	Static Drain to Source On-State Resistance	-	-	0.415	Ω	V _{GS} = 10 V, I _D = 8 A (4)
		-	-	0.515		V _{GS} = 10 V, I _D = 12 A (4)
V _{GS(th)}	Gate Threshold Voltage	2.0	-	4.0	V	V _{DS} = V _{GS} , I _D = 250 μA
g _{sf}	Forward Transconductance	6.5	-	-	S(Ω)	V _{DS} ≥ 15 V, I _{DS} = 8 A (4)
I _{DSS}	Zero Gate Voltage Drain Current	-	-	25	μA	V _{DS} = 400 V, V _{GS} = 0 V
		-	-	250		V _{DS} = 400 V, V _{GS} = 0 V, T _J = 125 °C
I _{GSSF}	Gate to Source Leakage Forward	-	-	100	nA	V _{GS} = 20 V
I _{GSSR}	Gate to Source Leakage Reverse	-	-	-100	nA	V _{GS} = -20 V
Q _g	Total Gate Charge	-	-	120	nC	V _{GS} = 10 V, I _D = 12 A, V _{DS} = 250 V
Q _{gs}	Gate to Source Charge	-	-	19		
Q _{gd}	Gate to Drain (Miller) Charge	-	-	70		
T _{d(on)}	Turn On Delay Time	-	-	35	nS	V _{DD} = 250 V, I _D = 12 A, V _{GS} = 10 V, R _G = 2.35 Ω
T _r	Rise Time	-	-	190		
T _{d(off)}	Turn Off Delay Time	-	-	170		
T _f	Fall time	-	-	130		
C _{iss}	Input Capacitance	-	-	-	pF	V _{GS} = 0 V, V _{DS} = 25 V, f = 1.0 MHz
C _{oss}	Output Capacitance	-	-	-		
C _{rSS}	Reverse Transfer Capacitance	-	-	-		

Source-Drain Diode Rating and Characteristics

	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I _S	Continuous Source Current (Body Diode)	-	-	12	A	
I _{SM}	Pulse Source Current (Body Diode)	-	-	48	A	
V _{SD}	Diode Forward Voltage	-	-	1.7	V	T _i = 25 °C, I _S = 12 A, V _{GS} = 0 V (4)
T _{rr}	Reverse Recovery Time	-	-	1600	nS	T _i = 25 °C, I _F = 12 A, di/dt ≤ 100 A/μS, V _{DD} ≤ 50 V (4)

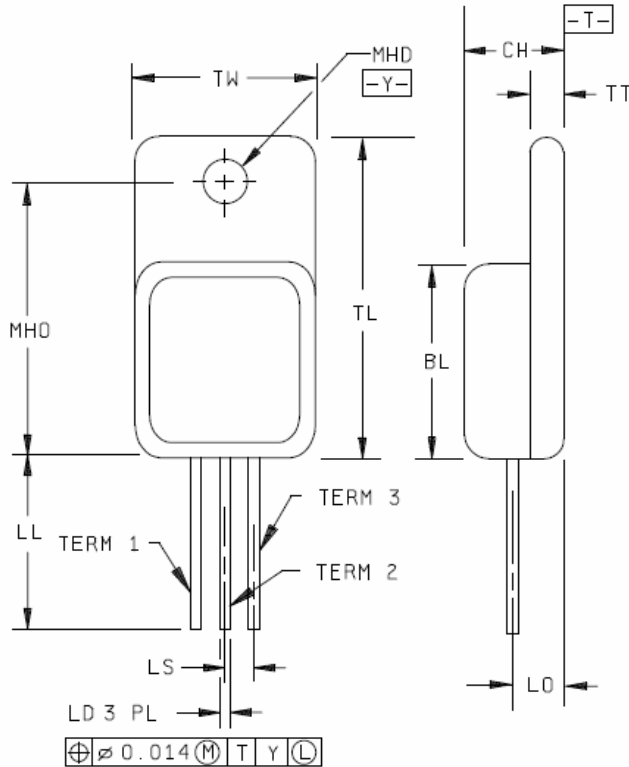
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TO-254 AA Case Outline and Dimensions



Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.535	.545	13.59	13.84
CH	.249	.260	6.32	6.60
LD	.035	.045	0.89	1.14
LL	.510	.570	12.95	14.48
LO	.150 BSC		3.81 BSC	
LS	.150 BSC		3.81 BSC	
MHD	.139	.149	3.53	3.78
MHO	.665	.685	16.89	17.40
TL	.790	.800	20.07	20.32
TT	.040	.050	1.02	1.27
TW	.535	.545	13.59	13.84

Pin Assignment	
Term 1	Drain
Term 2	Source
Term 3	Gate

CAUTION BERYLLIA WARNING PER MIL-PRF-19500

Package containing beryllia shall not be ground, sandblasted, machined, or have other operations performed on them which will produce beryllia or beryllium dust. Furthermore, beryllium oxide packages shall not be placed in acids that will produce fumes containing beryllium.

Footnotes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. $V_{DD} = 50$ V starting $T_J = 25$ °C, Peak $I_L = 12$ A, $L = 10.4$ mH, $V_{GS} = 10$ V
3. $I_{SD} \leq 12$ A, $di/dt \leq 130$ A/ μ S, $V_{DD} \leq 500$ V, $T_J \leq 150$ °C
4. Pulse width ≤ 300 μ S; Duty Cycle $\leq 2\%$

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Data and specification subject to change without notice.



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