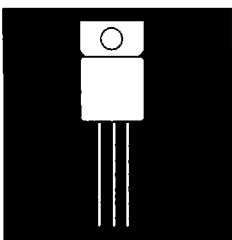


RADIATION HARDENED POWER MOSFETS IN HERMETIC ISOLATED PACKAGE P-CHANNEL



100V, 10 Amp, P-Channel, Radiation Hardened
Power MOSFET In A Hermetic Metal Package

FEATURES

- Rated As Radiation Hard
- Avalanche Energy Rated
- Isolated Hermetic Package
- Low $R_{DS(on)}$
- High Switching Speeds
- Screened to TX, TXV And S Levels

DESCRIPTION

This P-Channel Power MOSFET product is in a hermetic package and features the latest radiation hard power semiconductor. This semiconductor die is processed to achieve hardened characteristics. Total dose hardness is available at 100K and 1000K rads with neutron hardness at $1E14$ N/CM². Dose rate hardness, without current limiting, is to rates of $1E9$ rads/sec, and with current limiting $2E12$ rads/sec. The heavy ion survival rate, from a single event drain burn out, is a linear energy transfer (LET) of 35 at 80 Volts.

ABSOLUTE MAXIMUM RATINGS $T_C = 25^{\circ}C$

Drain Source Voltage, V_{DS} - 100 V
Drain Gate Voltage ($R_{GS} = 20KW$), V_{DGR} - 100 V
Continuous Drain Current, I_D - 10.2 A
Continuous Drain Current, $I_D @ 100^{\circ}C$ - 6.4 A
Pulsed Drain Current, I_{DM} - 41 A
Max. Power Dissipation, P_D 70 W
Max. Power Dissipation, $P_D @ 100^{\circ}C$ 32 W
Linear Derating Factor51 W/ $^{\circ}C$
Operating Temperature, T_J -55 $^{\circ}C$ TO +150 $^{\circ}C$
Storage Temperature, T_{stg} -55 $^{\circ}C$ TO +175 $^{\circ}C$
Lead Temperature - 1/16" from case for 10 sec 300 $^{\circ}C$

RAD HARDNESS RATING $T_C = 25^{\circ}C$

CHARACTERISTIC	INITIAL	POST RADIATION - RADS		
		10K	100K	1MEG
BV_{DSS}	100V	100V	100V	95V
$R_{DS(on)}$	.60 Ω	.60 Ω	.60 Ω	.86 Ω
V_{GS}	2.0 - 4.0V	2.0 - 4.0V	2.0 - 4.0V	2.0 - 4.0V

3.1

ELECTRICAL CHARACTERISTICS: (T_C = 25°C unless otherwise noted)
STATIC P/N OM9130STC (100V, P-Channel)

Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV _{DSS} Drain-Source Breakdown Voltage	100			V	V _{GS} = 0, I _D = 250 μA
V _{GS(th)} Gate-Threshold Voltage	2.0		4.0	V	V _{DS} = V _{GS} , I _D = 250 μA
I _{GSS} Gate-Body Leakage			± 100	nA	V _{GS} = ± 20 V
I _{DSS} Zero Gate Voltage Drain Current		0.1	0.25	mA	V _{DS} = Max. Rat., V _{GS} = 0
		0.2	1.0	mA	V _{DS} = 0.8 Max. Rat., V _{GS} = 0, T _C = 125° C
I _{D(on)} On-State Drain Current ¹	10.2			A	V _{DS} ≥ 2 V _{DS(on)} , V _{GS} = 10 V
R _{DS(on)} Static Drain-Source On-State Resistance ¹			0.34	Ω	V _{GS} = 10 V, I _D = 6 A
R _{DS(on)} Static Drain-Source On-State Resistance ¹			0.68	Ω	V _{GS} = 10 V, I _D = 6 A., T _C = 125°C

DYNAMIC

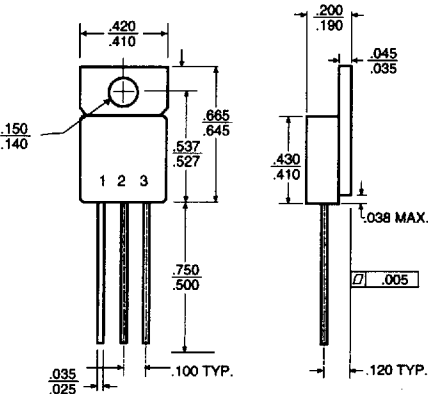
g _{fs} Forward Transconductance ¹	2.0			S(Ω)	V _{DS} ≥ 2 V _{DS(on)} , I _D = 6 A
C _{iss} Input Capacitance		500		pF	V _{GS} = 0
C _{oss} Output Capacitance		460		pF	V _{DS} = 25 V
C _{rss} Reverse Transfer Capacitance		100		pF	f = 1 MHz
t _{d(on)} Turn-On Delay Time		50		ns	V _{DD} = 50 V, I _D ≅ 6 A
t _r Rise Time		115		ns	R _g = 50 Ω, V _{DS} = 10 V
t _{d(off)} Turn-Off Delay Time		115		ns	
t _f Fall Time		115		ns	

BODY-DRAIN DIODE RATINGS AND CHARACTERISTICS

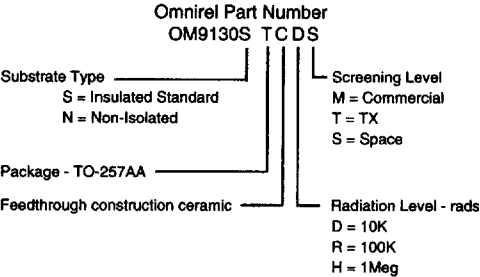
I _S Continuous Source Current (Body Diode)			12	A	Modified MOSPOWER symbol showing the integral P-N Junction rectifier.
I _{SM} Source Current ¹ (Body Diode)			48	A	
V _{SD} Diode Forward Voltage ¹		1.7		V	T _C = 25°C, I _S = -12 A, V _{GS} = 0
					T _C = 25°C, I _S = -12 A, V _{GS} = 0
t _{rr} Reverse Recovery Time		400		ns	T _J = 25°C, I _F = -12A, dI _F /ds = 100 A/μs

1 Pulse Test: Pulse Width ≤ 300μsec, Duty Cycle ≤ 2%.

MECHANICAL OUTLINE



ORDERING INFORMATION



3.1-210