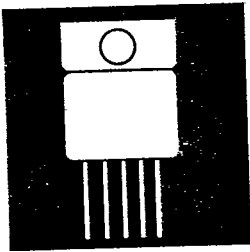


# POWER MOSFET WITH GATE DRIVE CIRCUIT IN 5-PIN HERMETIC PACKAGE

OMNIREL CORP



100V Thru 500V, Up To 14 Amp, N-Channel MOSFET With Low Power CMOS Gate Drive Circuitry

T-52-13-90

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## FEATURES

- Isolated Hermetic Package
- CMOS Gate Drive Circuitry
- Power MOSFET Terminals Accessible
- Low  $R_{DS(ON)}$
- Available Screened To OM803
- Logic Similar To Industry Standard TSC4420/4429

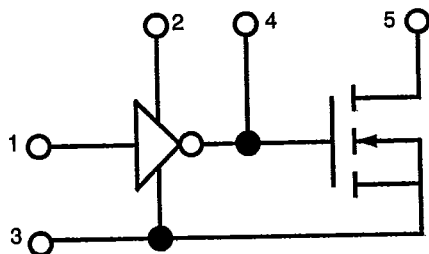
## DESCRIPTION

This series of products feature the latest advanced MOSFET devices packaged with a CMOS drive circuit in a hermetically sealed package. This circuitry enables the power MOSFET to be driven directly from standard logic integrated circuits. This eliminates the need for discrete circuitry between the logic and the MOSFET gate.

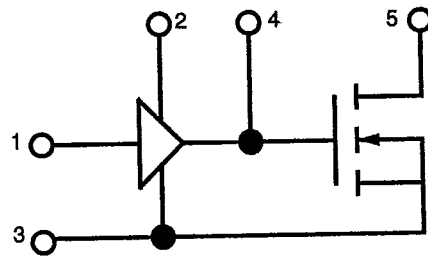
## MAXIMUM RATINGS (Output MOSFET)

PART NUMBER	$V_{DS}$	$R_{DS(ON)}$	$I_{D(MAX)}$
OM8013SC, OM8017SC	100V	.095 $\Omega$	14A
OM8014SC, OM8018SC	200V	.18 $\Omega$	14A
OM8015SC, OM8019SC	400V	.55 $\Omega$	10A
OM8016SC, OM8020SC	500V	.85 $\Omega$	8A

## SCHEMATIC



OM8013-16SC (INVERTING)



OM8017-20SC (NON-INVERTING)

**OUTPUT MOSFET ABSOLUTE MAXIMUM RATINGS** ( $T_C = 25^\circ\text{C}$  unless otherwise noted)

Parameter	OM8013 OM8017	OM8014 OM8018	OM8015 OM8019	OM8016 OM8020	Units
$V_{DS}$ Drain-Source Voltage	100	200	400	500	V
$I_D @ T_C = 25^\circ\text{C}$ Continuous Drain Current	$\pm 14$	$\pm 12$	$\pm 10$	$\pm 8$	A
$I_D @ T_C = 100^\circ\text{C}$ Continuous Drain Current	$\pm 14$	$\pm 12$	$\pm 6$	$\pm 5$	A
$V_{GS}$ Gate-Source Voltage <sup>2</sup>	$\pm 20$	$\pm 20$	$\pm 20$	$\pm 20$	V
$P_D @ T_C = 25^\circ\text{C}$ Max. Power Dissipation	125	125	125	125	W
$P_D @ T_C = 100^\circ\text{C}$ Max. Power Dissipation	50	50	50	50	W
Junction To Case Linear Derating Factor <sup>1</sup>	1.0	1.0	1.0	1.0	W/°C
Junction To Ambient Linear Derating Factor	.025	.025	.025	.025	W/°C
$T_J$ Operating and $T_{stg}$ Storage Temperature Range	-55 to 150	-55 to 150	-55 to 150	-55 to 150	°C
Lead Temperature (1/16" from case for 10 secs.)	300	300	300	300	°C

- 1 Pulse Test: Pulse width  $\leq 300 \mu\text{sec}$ . Duty Cycle  $\leq 2\%$ .
- 2 For direct drive to MOSFET Gate.

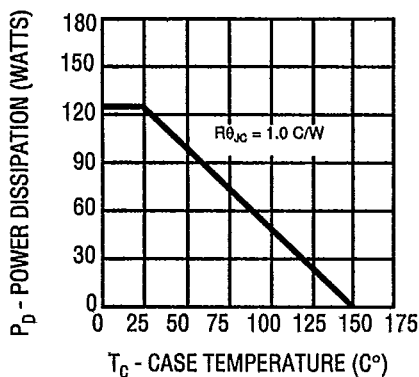
**INPUT LOGIC MAXIMUM RATINGS** ( $T_C = 25^\circ\text{C}$ )

Parameter	All Devices	Units
$V_C$ Control Voltage (Pin 2)	20	V
$V_{LOGIC}$ Drive Voltage (Pin 1)	20	V
$I_{INPUT}$ Input Current (Pin 1)	10	$\mu\text{A}$
$f_{OPERATING}$ Drive Frequency	500	kHz

**CIRCUIT CHARACTERISTICS**

Parameter	Test Conditions	OM8013 OM8017	OM8014 OM8018	OM8015 OM8019	OM8016 OM8020	Units
$V_{D(ON) Max. @ T_C = 25^\circ\text{C}}$	Rated $I_{D Max.}, V_C = +10\text{V}$	1.4	2.5	5.5	6.8	V
$V_{D(ON) Max. @ T_C = 100^\circ\text{C}}$	Rated $I_{D Max.}, V_C = +10\text{V}$	2.0	3.5	7.7	9.5	V
$T_{ON Max. @ T_C = 25^\circ\text{C}}$	$V_C = +10\text{V}, V_D = 30\text{V}, I_D = 17, R_L = 1.75\Omega$ , OM8013, 8017	90	90	90	90	nsec
$T_{OFF Max. @ T_C = 25^\circ\text{C}}$	$V_D = 75\text{V}, I_D = 11, R_L = 6.8\Omega$ , OM8014, 8018 $V_D = 200\text{V}, I_D = 6, R_L = 33\Omega$ , OM8015, 8019 $V_D = 210\text{V}, I_D = 5, R_L = 40\Omega$ , OM8016, 8020	170	170	170	170	nsec

**POWER DERATING**



**MECHANICAL OUTLINE**

