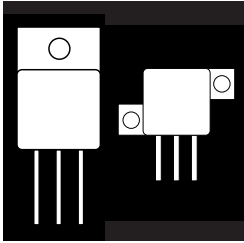


OM6025SC OM6027SC OM6031SC  
OM6026SC OM6028SC OM6032SC

# POWER MOSFETS IN HERMETIC ISOLATED JEDEC TO-258AA SIZE 6 DIE



**400V Thru 1000V, Up To 26 Amp N-Channel, Size 6 MOSFETs, High Energy Capability**

## FEATURES

- Isolated Hermetic Metal Package
- Size 6 Die, High Energy
- Fast Switching, Low Drive Current
- Ease of Paralleling For Added Power
- Low  $R_{DS(on)}$
- Available Screened To MIL-S-19500, TX, TXV And S Levels

## DESCRIPTION

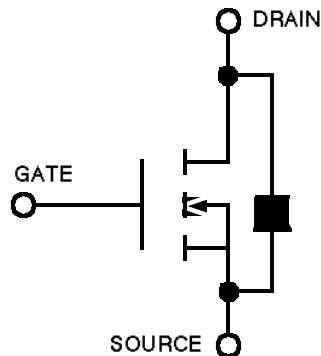
This series of hermetically packaged products feature the latest advanced MOSFET and packaging technology. They are ideally suited for Military requirements where small size, high performance and high reliability are required, and in applications such as switching power supplies, motor controls, inverters, choppers, audio amplifiers and high energy pulse circuits. This series also features avalanche high energy capability at elevated temperatures.

## MAXIMUM RATINGS

PART NUMBER	$V_{DS}$	$R_{DS(ON)}$	$I_D$ (Amp)
OM6025SC/OM6032SC	400	.20	24
OM6026SC/OM6031SC	500	.27	22
OM6027SC/OM6028SC	1000	1.30	10

3.1

## SCHEMATIC



## OM6025SC - OM6032SC

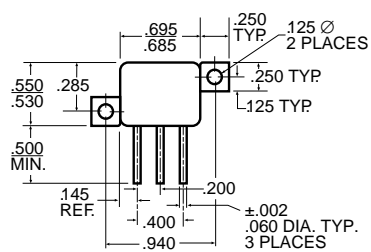
### ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Parameter		OM6025SC	OM6026SC	OM6027SC	Units
		OM6032SC	OM6031SC	OM6028SC	
$V_{DS}$	Drain-Source Voltage	400	500	1000	V
$V_{DGR}$	Drain-Gate Voltage ( $R_{GS} = 1 \text{ M}$ )	400	500	1000	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current	24	22	10	A
$I_{DM}$	Pulsed Drain Current	92	85	40	A
$P_D @ T_C = 25^\circ\text{C}$	Maximum Power Dissipation	165	165	165	W
	Derate Above $25^\circ\text{C}$ Ambient	.025	.025	.025	W/ $^\circ\text{C}$
$W_{DSS} (1)$	Single Pulse Energy				
	Drain To Source @ $25^\circ\text{C}$	1000	1200	1000	mJ
$T_J$	Operating and				
$T_{stg}$	Storage Temperature Range	-55 to 150	-55 to 150	-55 to 150	$^\circ\text{C}$
Lead Temperature	(1/8" from case for 5 secs.)	275	275	275	$^\circ\text{C}$

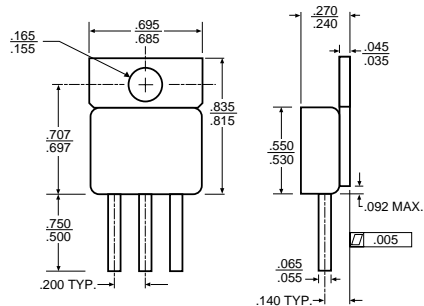
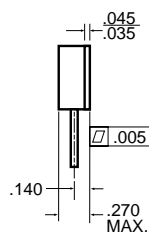
**Note 1:**  $V_{DD} = 50\text{V}$ ,  $I_D = \text{as noted}$

THERMAL RESISTANCE (MAXIMUM) at $T_A = 25^\circ\text{C}$				
$R_{thJC}$	Junction-to-Case	.76	$^\circ\text{C/W}$	
$R_{thJA}$	Junction-to-Ambient	40	$^\circ\text{C/W}$	Free Air Operation
	Derate above $25^\circ\text{C}$ $T_C$	1.32	W/ $^\circ\text{C}$	

### MECHANICAL OUTLINES

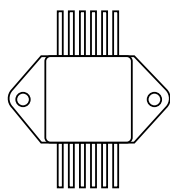


OM6028SC, OM6031SC, OM6032SC

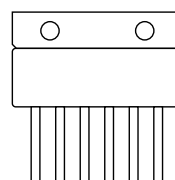


OM6025SC, OM6026SC, OM6027SC

### PACKAGE OPTIONS



MOD PAK



6 PIN SIP

NOTE: MOSFETs are also available in Z-Tab, dual and quad pak styles - Please call the factory for more information.

## OM6025SC - OM6032SC

### ELECTRICAL CHARACTERISTICS: OM6025SC, OM6032SC (T<sub>C</sub> = 25° unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
<b>OFF CHARACTERISTICS</b>					
Drain-Source Breakdown Voltage (V <sub>GS</sub> = 0, I <sub>D</sub> = 0.25 mA)	V <sub>(BR)DSS</sub>	400	-	-	Vdc
Zero Gate Voltage Drain (V <sub>DS</sub> = 400 V, V <sub>GS</sub> = 0) (V <sub>DS</sub> = 400 V, V <sub>GS</sub> = 0, T <sub>J</sub> = 125° C)	I <sub>BSS</sub>	-	-	0.25 1.0	mAdc
Gate-Body Leakage Current, Forward (V <sub>GSR</sub> = 20 Vdc, V <sub>DS</sub> = 0)	I <sub>GSSF</sub>	-	-	100	nAdc
Gate-Body Leakage Current, Reverse (V <sub>GSR</sub> = 20 Vdc, V <sub>DS</sub> = 0)	I <sub>GSSR</sub>	-	-	100	nAdc

### ON CHARACTERISTICS\*

Gate-Threshold Voltage (V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 0.25 mAdc (T <sub>J</sub> = 125° C)	V <sub>GS(th)</sub>	2.0 1.5	3.0 -	4.0 3.5	Vdc
Static Drain-Source On-Resistance (V <sub>GS</sub> = 10 Vdc, I <sub>D</sub> = 12 Adc)	r <sub>DS(on)</sub>	-	-	0.20	Ohm
Drain-Source On-Voltage (V <sub>GS</sub> = 10 Vdc) (I <sub>D</sub> = 24 A) (I <sub>D</sub> = 12 A, T <sub>J</sub> = 125° C)	V <sub>DS(on)</sub>	-	-	5.4 5.4	Vdc
Forward Transconductance (V <sub>DS</sub> = 15 Vdc, I <sub>D</sub> = 12 Adc)	g <sub>FS</sub>	14	-	-	mhos

### DYNAMIC CHARACTERISTICS

Input Capacitance	(V <sub>DS</sub> = 25 V, V <sub>GS</sub> = 0, f = 1.0 MHz)	C <sub>iss</sub>	-	5600	-	pF
Output Capacitance		C <sub>oss</sub>	-	78	-	
Transfer Capacitance		C <sub>rss</sub>	-	230	-	

### SWITCHING CHARACTERISTICS

Turn-On Delay Time	(V <sub>DD</sub> = 250 V, I <sub>D</sub> = 24 A, R <sub>gen</sub> = 4.3 ohms)	t <sub>d(on)</sub>	-	70	-	ns
Rise Time		t <sub>r</sub>	-	190	-	
Turn-Off Delay Time		t <sub>d(off)</sub>	-	160	-	
Fall Time		t <sub>f</sub>	-	160	-	
Total Gate Charge	(V <sub>DS</sub> = 400 V, I <sub>D</sub> = 24 A, V <sub>GS</sub> = 10 V)	Q <sub>g</sub>	-	110	140	nC
Gate-Source Charge		Q <sub>gs</sub>	-	20	-	
Gate-Drain Charge		Q <sub>gd</sub>	-	55	-	

### SOURCE DRAIN DIODE CHARACTERISTICS

Forward On-Voltage	(I <sub>S</sub> = 24 A, d/dt = 100 A/μs)	V <sub>SD</sub>	-	1.1	1.6	Vdc
Forward Turn-On Time		t <sub>on</sub>	-	**	-	ns
Reverse Recovery Time		t <sub>rr</sub>	-	500	1000	

### ELECTRICAL CHARACTERISTICS: OM6026SC, OM6031SC (T<sub>C</sub> = 25° unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
<b>OFF CHARACTERISTICS</b>					
Drain-Source Breakdown Voltage (V <sub>GS</sub> = 0, I <sub>D</sub> = 0.25 mA)	V <sub>(BR)DSS</sub>	500	-	-	Vdc
Zero Gate Voltage Drain (V <sub>DS</sub> = 500 V, V <sub>GS</sub> = 0) (V <sub>DS</sub> = 500 V, V <sub>GS</sub> = 0, T <sub>J</sub> = 125° C)	I <sub>BSS</sub>	-	-	0.25 1.0	mAdc
Gate-Body Leakage Current, Forward (V <sub>GSR</sub> = 20 Vdc, V <sub>DS</sub> = 0)	I <sub>GSSF</sub>	-	-	100	nAdc
Gate-Body Leakage Current, Reverse (V <sub>GSR</sub> = 20 Vdc, V <sub>DS</sub> = 0)	I <sub>GSSR</sub>	-	-	100	nAdc

### ON CHARACTERISTICS\*

Gate-Threshold Voltage (V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 0.25 mAdc (T <sub>J</sub> = 125° C)	V <sub>GS(th)</sub>	2.0 1.5	3.0 -	4.0 3.5	Vdc
Static Drain-Source On-Resistance (V <sub>GS</sub> = 10 Vdc, I <sub>D</sub> = 11 Adc)	r <sub>DS(on)</sub>	-	-	0.27	Ohm
Drain-Source On-Voltage (V <sub>GS</sub> = 10 Vdc) (I <sub>D</sub> = 22 A) (I <sub>D</sub> = 11 A, T <sub>J</sub> = 125° C)	V <sub>DS(on)</sub>	-	-	8.0 8.0	Vdc
Forward Transconductance (V <sub>DS</sub> = 15 Vdc, I <sub>D</sub> = 11 Adc)	g <sub>FS</sub>	13	-	-	mhos

### DYNAMIC CHARACTERISTICS

Input Capacitance	(V <sub>DS</sub> = 25 V, V <sub>GS</sub> = 0, f = 1.0 MHz)	C <sub>iss</sub>	-	5600	-	pF
Output Capacitance		C <sub>oss</sub>	-	680	-	
Transfer Capacitance		C <sub>rss</sub>	-	200	-	

### SWITCHING CHARACTERISTICS

Turn-On Delay Time	(V <sub>DD</sub> = 250 V, I <sub>D</sub> = 22 A, R <sub>gen</sub> = 4.3 ohms)	t <sub>d(on)</sub>	-	70	-	ns
Rise Time		t <sub>r</sub>	-	190	-	
Turn-Off Delay Time		t <sub>d(off)</sub>	-	160	-	
Fall Time		t <sub>f</sub>	-	160	-	
Total Gate Charge	(V <sub>DS</sub> = 400 V, I <sub>D</sub> = 22 A, V <sub>GS</sub> = 10 V)	Q <sub>g</sub>	-	115	140	nC
Gate-Source Charge		Q <sub>gs</sub>	-	20	-	
Gate-Drain Charge		Q <sub>gd</sub>	-	60	-	

### SOURCE DRAIN DIODE CHARACTERISTICS

Forward On-Voltage	(I <sub>S</sub> = 22 A, d/dt = 100 A/μs)	V <sub>SD</sub>	-	1.1	1.6	Vdc
Forward Turn-On Time		t <sub>on</sub>	-	**	-	ns
Reverse Recovery Time		t <sub>rr</sub>	-	500	1000	

\* Indicates Pulse Test = 300 μsec, Duty Cycle = 2%

\*\* Limited by circuit inductance

3.1

## OM6025SC - OM6032SC

### ELECTRICAL CHARACTERISTICS: OM6027SC, OM6028SC (T<sub>C</sub> = 25° unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Unit	
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage (V <sub>GS</sub> = 0, I <sub>D</sub> = 0.25 mA)	V <sub>(BR)DSS</sub>	1000	-	-	Vdc	
Zero Gate Voltage Drain (V <sub>DS</sub> = 1000 V, V <sub>GS</sub> = 0) (V <sub>DS</sub> = 1000 V, V <sub>GS</sub> = 0, T <sub>J</sub> = 125° C)	I <sub>DSS</sub>	-	-	0.25 1.0	mAdc	
Gate-Body Leakage Current, Forward (V <sub>GSF</sub> = 20 Vdc, V <sub>DS</sub> = 0)	I <sub>GSSF</sub>	-	-	100	nAdc	
Gate-Body Leakage Current, Reverse (V <sub>GSR</sub> = 20 Vdc, V <sub>DS</sub> = 0)	I <sub>GSSR</sub>	-	-	100	nAdc	
<b>ON CHARACTERISTICS*</b>						
Gate-Threshold Voltage (V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 0.25 mAdc (T <sub>J</sub> = 125° C)	V <sub>GS(th)</sub>	2.0 1.5	3.0	4.0 3.5	Vdc	
Static Drain-Source On-Resistance (V <sub>GS</sub> = 10 Vdc, I <sub>D</sub> = 5 Adc)	r <sub>DS(on)</sub>	-	-	1.3	Ohm	
Drain-Source On-Voltage (V <sub>GS</sub> = 10 Vdc) (I <sub>D</sub> = 10 A) (I <sub>D</sub> = 5 A, T <sub>J</sub> = 125° C)	V <sub>DS(on)</sub>	-	-	15 15.3	Vdc	
Forward Transconductance (V <sub>DS</sub> = 15 Vdc, I <sub>D</sub> = 5 Adc)	g <sub>FS</sub>	5.0	-	-	mhos	
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	(V <sub>DS</sub> = 25 V, V <sub>GS</sub> = 0, f = 1.0 MHz)	C <sub>ISS</sub>	-	3900	-	pF
Output Capacitance		C <sub>OSS</sub>	-	300	-	
Transfer Capacitance		C <sub>RSS</sub>	-	65	-	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	(V <sub>DD</sub> = 250 V, I <sub>D</sub> = 5 A, R <sub>gen</sub> = 4.3 ohms)	t <sub>d(on)</sub>	-	40	-	ns
Rise Time		t <sub>r</sub>	-	100	-	
Turn-Off Delay Time		t <sub>d(off)</sub>	-	100	-	
Fall Time		t <sub>f</sub>	-	100	-	
Total Gate Charge	(V <sub>DS</sub> = 400 V, I <sub>D</sub> = 10 A, V <sub>GS</sub> = 10 V)	Q <sub>g</sub>	-	100	140	nC
Gate-Source Charge		Q <sub>gs</sub>	-	20	-	
Gate-Drain Charge		Q <sub>gd</sub>	-	40	-	
<b>SOURCE DRAIN DIODE CHARACTERISTICS</b>						
Forward On-Voltage	(I <sub>S</sub> = 10 A, d/dt = 100 A/μs)	V <sub>SD</sub>	-	-	1.5	Vdc
Forward Turn-On Time		t <sub>on</sub>	-	**	-	ns
Reverse Recovery Time		t <sub>rr</sub>	-	600	1000	-

\* Indicates Pulse Test = 300 μsec, Duty Cycle = 2%

\*\* Limited by circuit inductance