



ZXMS6004DT8  
ZXMS6005DT8  
ZXMS6005DG  
ZXMS6005SG

## Dual self protected MOSFETs provide complete protection and greater thermal efficiency

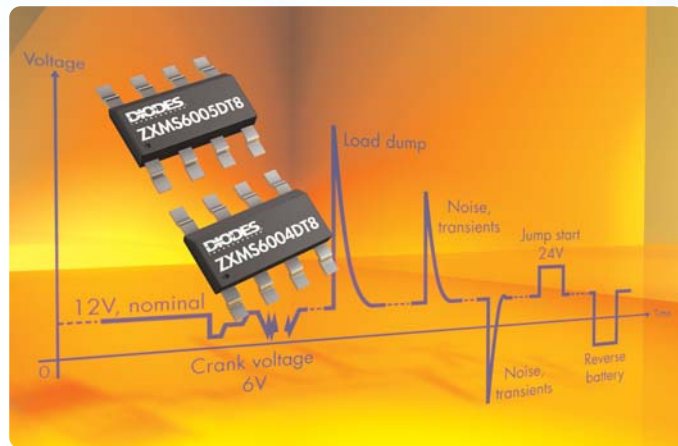
Optimized for use in the harshest electrical environments, Diodes Incorporated has introduced a pair of dual self-protected low side MOSFETs providing automotive and industrial applications with enhanced levels of circuit protection and improvements in overall circuit reliability.

With an  $R_{thj-a}$  rating of  $95^{\circ}\text{C}/\text{W}$ , these SM8 packaged devices offer a thermal efficiency 30% better than that of alternative SO8 packaged devices, ensuring cooler running.

The latest additions to the IntelliFET<sup>®</sup> product line, the space saving 60V rated N-channel ZXMS6004DT8 and ZXMS6005DT8 integrate over-temperature, over-current, over-voltage and input ESD protection on each of their 2 independent and isolated switching channels.

The MOSFETs handle nominal load currents of 1.2A and 1.8A respectively and present on resistances of only 500m $\Omega$  and 200m $\Omega$ . Both devices have an inductive clamping energy rating of 210mJ.

Two additional single channel devices have also been announced by Diodes; the ZXMS6005DG and ZXMS6005SG offering the same level of protection as the duals and provide a cost effective alternative to competing single channel self protected MOSFET solutions.



### The Diodes' Advantage

#### ■ Low thermal resistance

The SM8 package has a thermal resistance 30% lower than competing SO8 solutions, enabling cooler running more reliable end applications

#### ■ Two independent and isolated self-protected MOSFETs

Co-packaging two self-protected MOSFETs enables one dual SM8 to replace two SOT223 whilst delivering the same thermal performance.

#### ■ Short circuit protection

Device protects both itself and the load from over current conditions

#### ■ Over voltage protection

Particularly important when driving inductive loads, to protect against over-voltage breakdown

### Applications

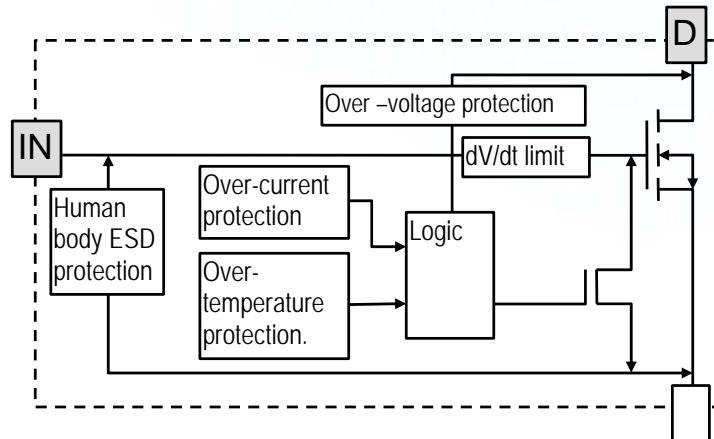
- Lamp driver
- Motor driver
- Solenoid driver
- Remote I/O controller outputs (Programmable Logic Controllers)
- Relay driving
- Proximity switches
- Alarm system
- GPS system
- Relay driving in HVAC applications



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### Block Diagram of a single self-protected MOSFET



### IntelliFET® portfolio

Part Number	Status	Configuration	TAB	BV <sub>DSS</sub> (V)	I <sub>D</sub> (A) V <sub>IN</sub> = 5V	P <sub>D</sub> (W)	R <sub>DS(on)</sub> Max(Ω) @V <sub>IN</sub> =			V <sub>DS(S/C)</sub> V <sub>IN</sub> = 5V	EAS (mJ)	T <sub>J</sub> (°C)	Package Outlines
							3V	5V	10V				
ZXMS6004DT8	New product	Dual	N/A	60	1.2	2.3	0.6	0.5	-	36	210	150	SM8
ZXMS6005DG	New Product	Single	Drain	60	2	1.6	0.25	0.2	-	36	490	150	SOT223
ZXMS6005SG	New Product	Single	Source	60	2	1.6	0.25	0.2	-	36	490	150	SOT223
ZXMS6005DT8	New Product	Dual	N/A	60	1.8	1.6	0.25	0.2	-	36	210	150	SM8
BSP75G	Full Production	Single	Drain	60	1.4	2.5	-	0.675	0.55	36	550	150	SOT223
BSP75N	Full Production	Single	Source	60	1.2	1.5	-	0.675	0.55	36	550	150	SOT223
ZXMS6001N3	Full Production	Single	Source	60	1.1	1.5	2	0.675	-	36	550	150	SOT223
ZXMS6002G	Full Production	Single	Drain	60	1.4	2.5	-	0.675	0.55	36	550	150	SOT223
ZXMS6003G	Full Production	Single	Drain	60	1.4	2.5	-	0.675	0.55	36	550	150	SOT223
ZXMS6004SG	Full Production	Single	Source	60	1.3	1.6	0.6	0.5	-	36	480	150	SOT223
ZXMS6004DG	Full Production	Single	Drain	60	1.3	3	0.6	0.5	-	36	490	150	SOT223
ZXMS6004FF	Full Production	Single	N/A	60	1.3	1.5	0.6	0.5	-	36	90	150	SOT23F
ZXMS6004SG	Full Production	Single	Source	60	1.3	1.6	0.6	0.5	-	36	480	150	SOT223

### Cross reference

Diodes Part Number	Competitor Part Number	Comment
ZXMS6004DT8	-	-
ZXMS6005DG	BSP76	Footprint compatible, near electrical equivalent
ZXMS6005DG	BUIK127-50DL	Footprint compatible, near electrical equivalent
ZXMS6005DG	BUK127-50GT	Footprint compatible, near electrical equivalent
ZXMS6005DG	NCV8402	Footprint compatible, near electrical equivalent
ZXMS6005DG	VNN1NV04	Footprint compatible, near electrical equivalent
ZXMS6005DG	IPS1051LPBF	Footprint compatible, near electrical equivalent
ZXMS6005DT8	IPS1052GPBF	Near electrical equivalent, different package
ZXMS6005DT8	BTS3410G	Near electrical equivalent, different package
ZXMS6005DT8	VNS1NV04D	Near electrical equivalent, different package