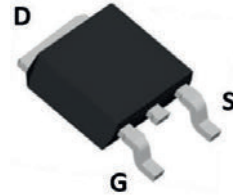
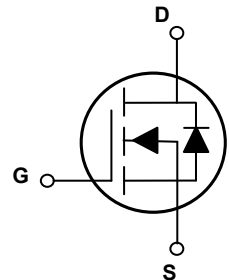


Main Product Characteristics

$V_{(BR)DSS}$	150V
$R_{DS(ON)}$	52mΩ (Typ.)
I_D	20A



TO-252 (DPAK)



Schematic Diagram



Features and Benefits

- Grand Turbo MOSFET process technology.
- Optimized the cell structure.
- Low on-resistance with low gate charge.
- Featuring low switching and drive losses.
- Fast switching and reverse body recovery.
- High ruggedness and robustness.

Description

The GSFD68015 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supplies and a wide variety of other applications.

Absolute Maximum Ratings ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	$V_{(BR)DSS}$	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_C=25^{\circ}\text{C}$) @ Steady-State ¹	I_D	20	A
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$) @ Steady-State		14	
Pulsed Drain Current ²	I_{DM}	80	A
Single Pulse Avalanche Energy ³	E_{AS}	25	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	75	W
Linear Derating Factor ($T_C=25^{\circ}\text{C}$)		0.6	
Junction-to-Ambient (PCB Mounted, Steady-State) ⁴	$R_{\theta JA}$	50	$^{\circ}\text{C/W}$
Junction to Case	$R_{\theta JC}$	1.6	$^{\circ}\text{C/W}$
Operating Junction Temperature Range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	150	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =150V, V _{GS} =0V	-	-	1	μA
		T _J =125°C	-	-	50	μA
Gate-Source Forward Leakage	I _{GSS}	V _{GS} =±20V	-	-	±100	nA
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =5A	-	52	68	mΩ
Gate Resistance	R _g	F=1MHz	-	2.5	-	Ω
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250uA	2.1	3	3.9	V
Dynamic and Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =75V, I _D =5A V _{GS} =10V	-	9.1	-	nC
Gate-Source Charge	Q _{gs}		-	3.5	-	
Gate-to-Drain("Miller") Charge	Q _{gd}		-	1.8	-	
Turn-On Delay Time	t _{d(on)}	V _{DS} =30V, R _G =6Ω, V _{GS} =10V, I _D =5A	-	7.3	-	nS
Rise Time	t _r		-	24	-	
Turn-Off Delay Time	t _{d(off)}		-	14	-	
Fall Time	t _f		-	22	-	
Input Capacitance	C _{iss}	V _{DS} =75V, V _{GS} =0V, F=1MHz	-	518	-	pF
Output Capacitance	C _{oss}		-	76	-	
Reverse Transfer Capacitance	C _{rss}		-	3.3	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current (Body Diode)	I _S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	20	A
Pulsed Source Current (Body Diode)	I _{SM}		-	-	80	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =2A	-	1	1.2	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _S =5A, di/dt=100A/μs	-	53	-	uS
Reverse Recovery Charge	Q _{rr}		-	0.11	-	nC

Notes:

1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
2. Repetitive rating; pulse width limited by max. junction temperature.
3. $L=0.5\text{mH}$, $R_G=25\Omega$, $V_{DD}=50V$, $I_{AS}=10A$, $T_J=25^{\circ}\text{C}$.
4. Device mounted on FR-4 PCB, 1inch x 0.85inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

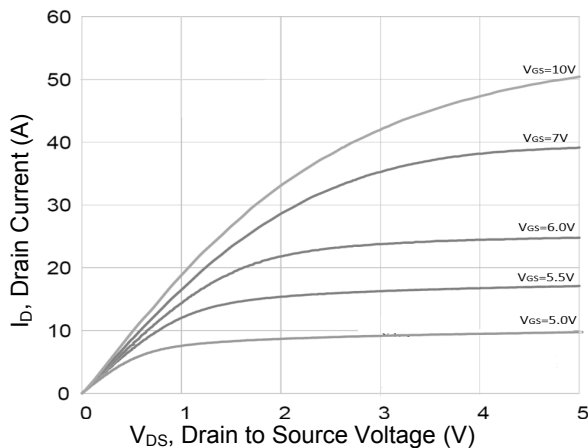


Figure 1. Typical Output Characteristics

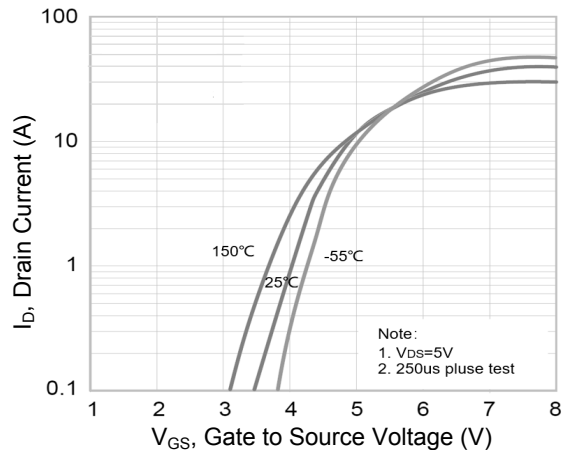


Figure 2. Transfer Characteristics

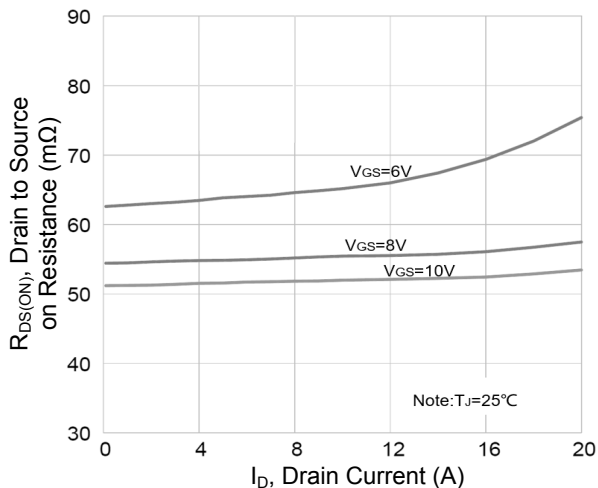


Figure 3. $R_{DS(ON)}$ vs. Drain Current

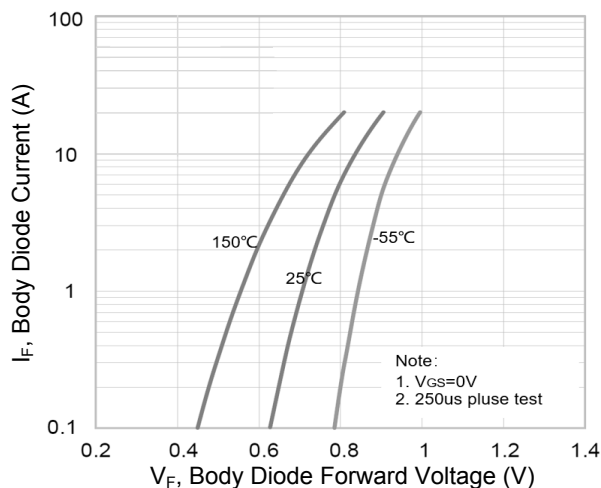


Figure 4. Body Diode Characteristics

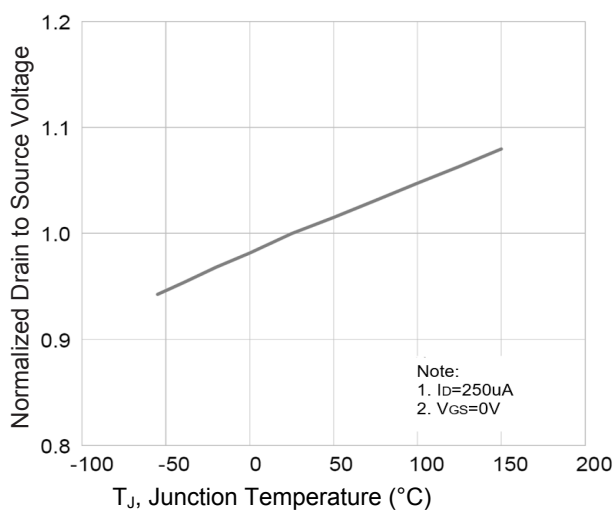


Figure 5. Normalized BV_{DSS} vs. T_J

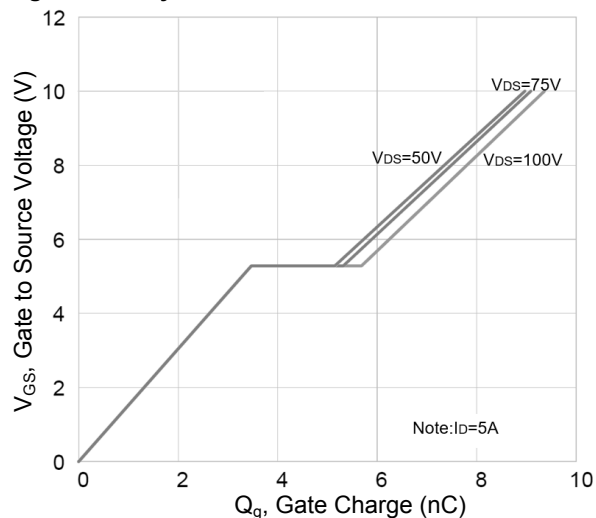


Figure 6. Gate Charge Characteristics

Typical Electrical and Thermal Characteristic Curves

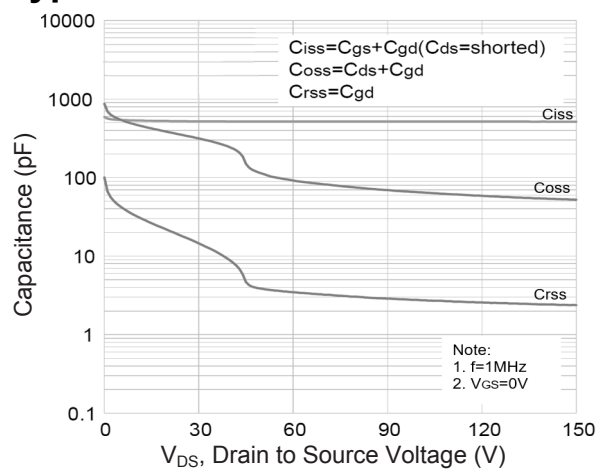


Figure 7. Capacitance Characteristics

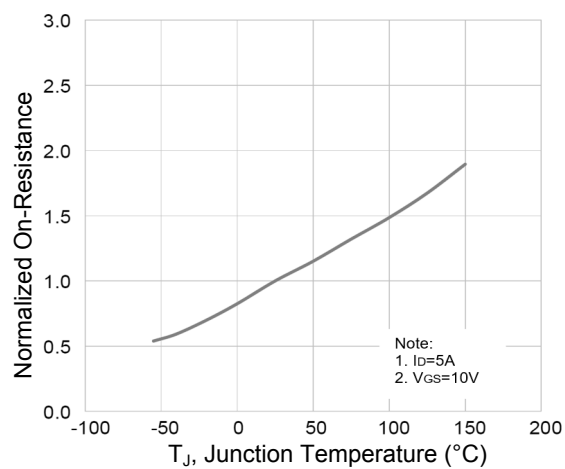
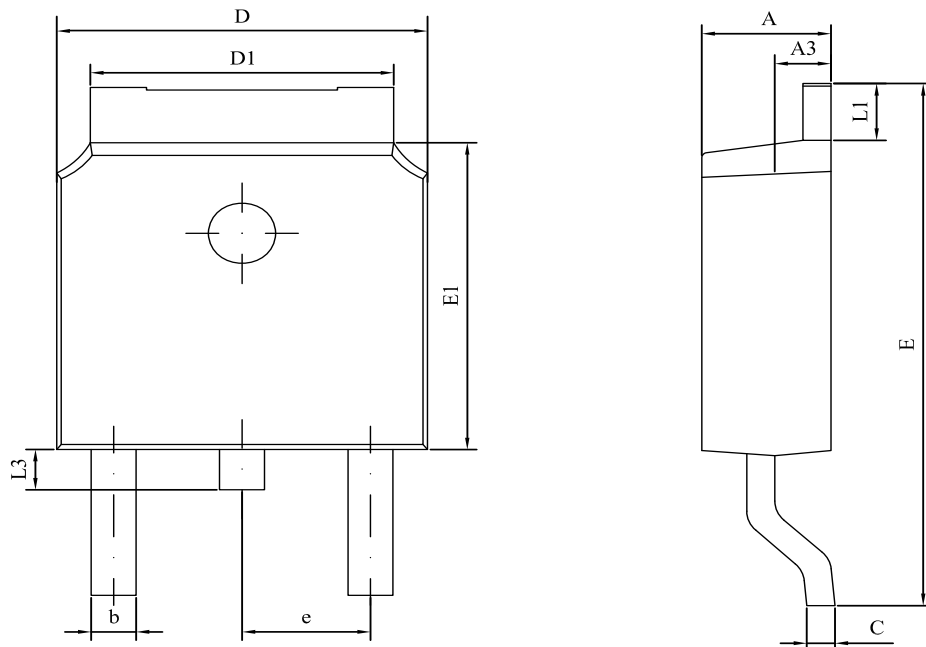


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

Package Outline Dimensions TO-252(DPAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.150	2.400	0.085	0.094
A3	0.900	1.100	0.035	0.043
b	0.500	0.900	0.020	0.035
C	0.400	0.650	0.016	0.026
D	6.300	6.900	0.248	0.272
D1	4.950	5.500	0.195	0.217
E	9.400	10.410	0.370	0.410
E1	5.900	6.300	0.232	0.248
e	2.286 BSC		0.090 BSC	
L1	0.890	1.270	0.035	0.050
L3	0.600	1.100	0.024	0.043

Order Information

Device	Package	Marking	Carrier	Quantity
GSFD68015	TO-252(DPAK)	D68015	Tape & Reel	2,500 Pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com