

# GL3055

## N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV <sub>DSS</sub>	30V
R <sub>DS(ON)</sub>	26mΩ
I <sub>D</sub>	4A

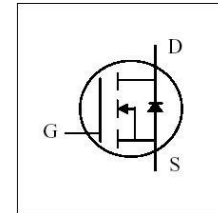
### Description

The GL3055 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

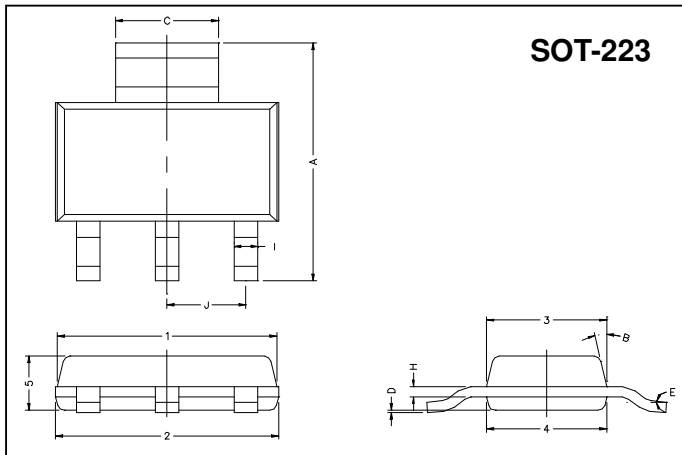
The SOT-223 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

### Features

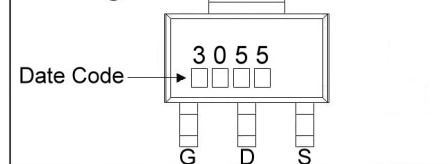
- \*Dynamic dv/dt Rating
- \*Simple Drive Requirement
- \*Repetitive Avalanche Rated
- \*Fast Switching



### Package Dimensions



### Marking :



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.70	7.30	B	13°TYP.	
C	2.90	3.10	J	2.30 REF.	
D	0.02	0.10	1	6.30	6.70
E	0°	10°	2	6.30	6.70
I	0.60	0.80	3	3.30	3.70
H	0.25	0.35	4	3.30	3.70
			5	1.40	1.80

### Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current, V <sub>GS</sub> @10V	I <sub>D</sub> @TA=25°C	4.0	A
Continuous Drain Current, V <sub>GS</sub> @10V	I <sub>D</sub> @TA=70°C	3.2	A
Pulsed Drain Current <sup>1</sup>	I <sub>DM</sub>	20	A
Total Power Dissipation	P <sub>D</sub> @TA=25°C	2.7	W
Linear Derating Factor		0.02	W/°C
Operating Junction and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 ~ +150	°C

### Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient Max.	R <sub>thj-a</sub>	45	°C/W

## Electrical Characteristics (Tj = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	-	-	V	V <sub>GS</sub> =0, I <sub>D</sub> =250Ua
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_j$	-	0.037	-	V/°C	Reference to 25°C, I <sub>D</sub> =1mA
Gate Threshold Voltage	V <sub>GS(th)</sub>	1.0	-	3.0	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA
Gate-Source Leakage Current	I <sub>GSS</sub>	-	-	±100	nA	V <sub>GS</sub> = ±20V
Drain-Source Leakage Current(Tj=25°C)	I <sub>DSS</sub>	-	-	25	uA	V <sub>DS</sub> =30V, V <sub>GS</sub> =0
Drain-Source Leakage Current(Tj=70°C)		-	-	250	uA	V <sub>DS</sub> =24V, V <sub>GS</sub> =0
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	-	-	26	mΩ	V <sub>GS</sub> =10V, I <sub>D</sub> =4A
		-	-	40		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	-	5.4	-	nC	I <sub>D</sub> =4A V <sub>DS</sub> =24V V <sub>GS</sub> =5V
Gate-Source Charge	Q <sub>gs</sub>	-	1.3	-		
Gate-Drain ("Miller") Change	Q <sub>gd</sub>	-	3.6	-		
Turn-on Delay Time <sup>2</sup>	T <sub>d(on)</sub>	-	3.6	-	ns	V <sub>DS</sub> =15V I <sub>D</sub> =1A V <sub>GS</sub> =10V R <sub>G</sub> =3.3Ω R <sub>D</sub> =1.9Ω
Rise Time	T <sub>r</sub>	-	19.8	-		
Turn-off Delay Time	T <sub>d(off)</sub>	-	13	-		
Fall Time	T <sub>f</sub>	-	3.2	-		
Input Capacitance	C <sub>iss</sub>	-	260	-	pF	V <sub>GS</sub> =0V V <sub>DS</sub> =25V f=1.0MHz
Output Capacitance	C <sub>oss</sub>	-	144	-		
Reverse Transfer Capacitance	C <sub>rss</sub>	-	13	-		

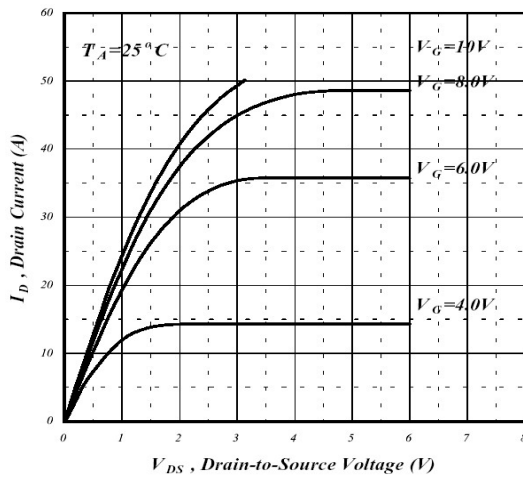
## Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage <sup>2</sup>	V <sub>SD</sub>	-	-	1.3	V	I <sub>S</sub> =2A, V <sub>GS</sub> =0V, Tj=25°C
Continuous Source Current(Body Diode)	I <sub>S</sub>	-	-	4	A	V <sub>D</sub> = V <sub>G</sub> =0V, V <sub>S</sub> =1.3V
Pulsed Source Current(Body Diode) <sup>1</sup>	I <sub>SM</sub>	-	-	20	A	

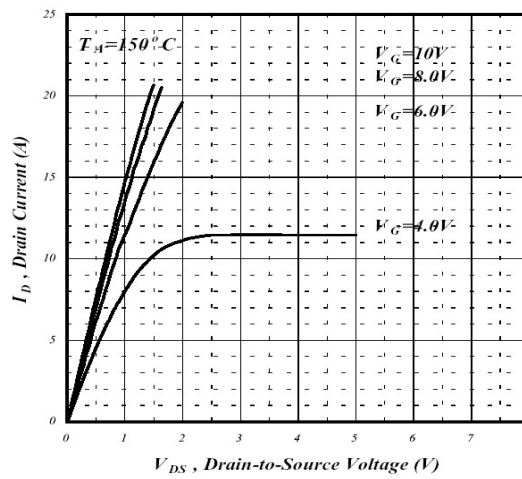
Notes: 1. Pulse width limited by safe operating area.

2. Pulse width ≤ 300us, duty cycle ≤ 2%.

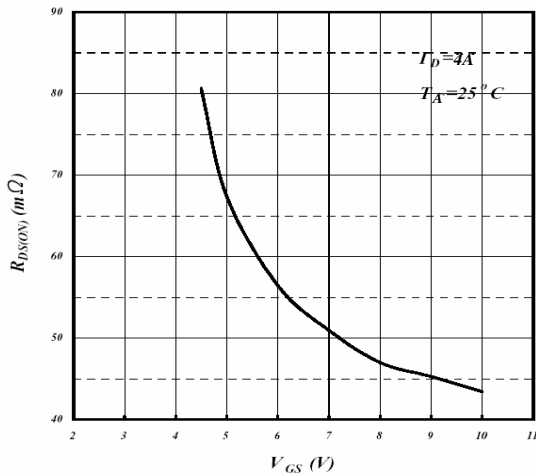
## Characteristics Curve



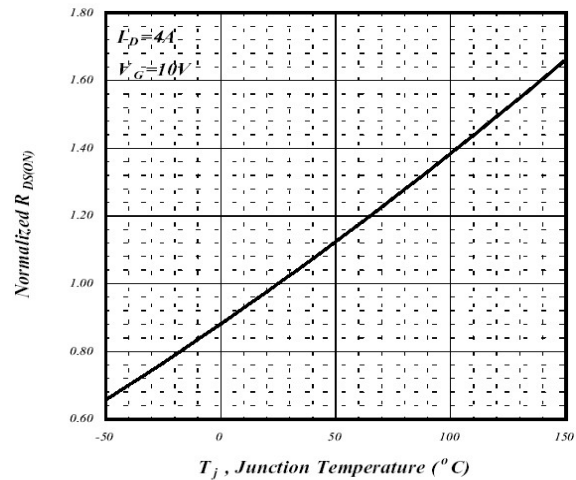
**Fig 1. Typical Output Characteristics**



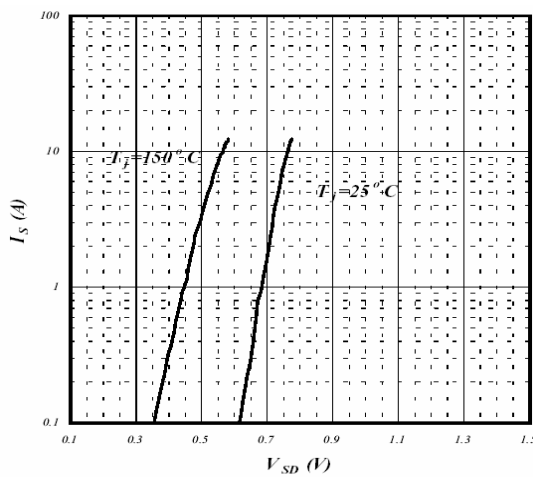
**Fig 2. Typical Output Characteristics**



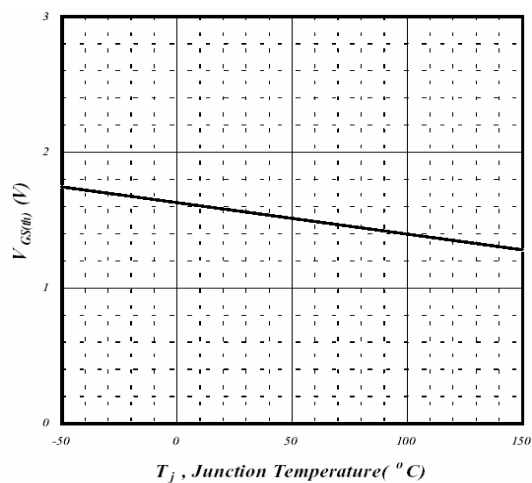
**Fig 3. On-Resistance v.s. Gate Voltage**



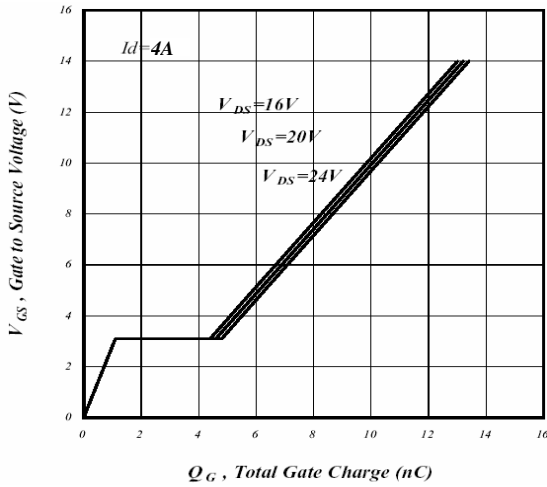
**Fig 4. Normalized On-Resistance v.s. Junction Temperature**



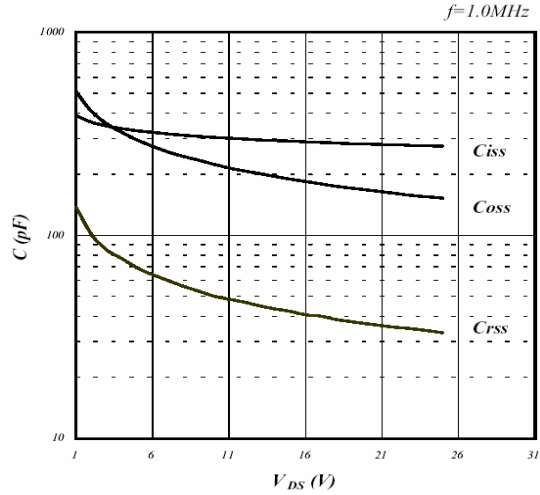
**Fig 5. Forward Characteristics of Reverse Diode**



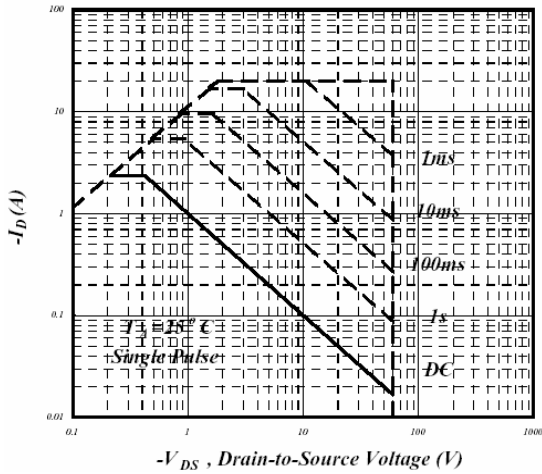
**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**



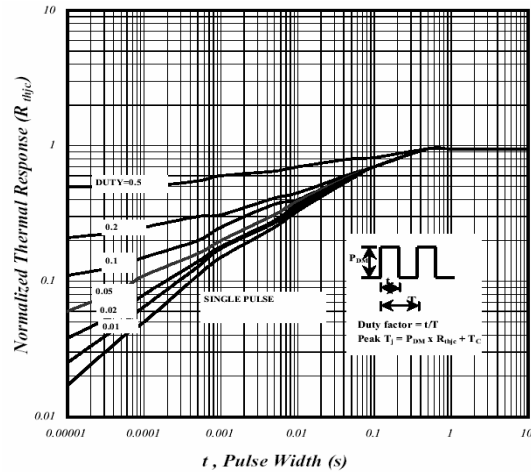
**Fig 7. Gate Charge Characteristics**



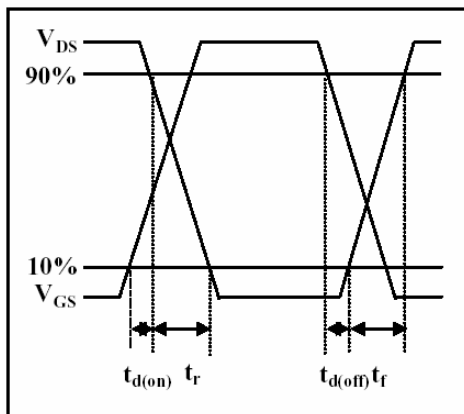
**Fig 8. Typical Capacitance Characteristics**



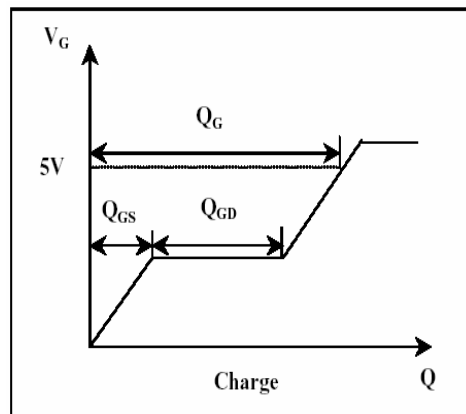
**Fig 9. Maximum Safe Operating Area**



**Fig 10. Effective Transient Thermal Impedance**



**Fig 11. Switching Time Circuit**



**Fig 12. Gate Charge Waveform**

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