GL3055

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

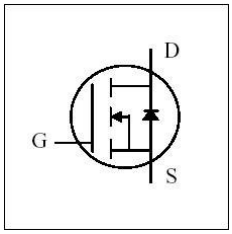
BV_{DSS}	30V
$R_{DS(ON)}$	26mΩ
I_D	4A

Description

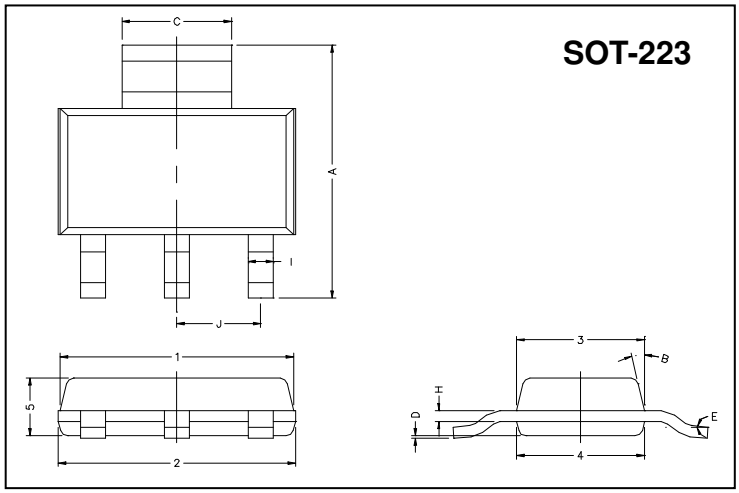
The GL3055 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.
The SOT-223 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

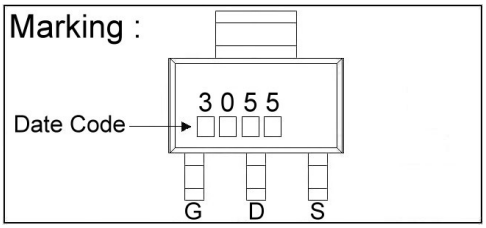
Features

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



Package Dimensions





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_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current , V_{GS}@10V	I_D @T_A=25℃	4.0	A
Continuous Drain Current , V_{GS}@10V	I_D @T_A=70℃	3.2	A
Pulsed Drain Current[1]	I_{DM}	20	A
Total Power Dissipation	P_D @T_A=25℃	2.7	W
Linear Derating Factor		0.02	W/℃
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient Max.	Rthj-a	45	℃/W

Electrical Characteristics (Tj = 25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250Ua
Breakdown Voltage Temperature Coefficient	$\triangle BV_{DSS}/\triangle Tj$	-	0.037	-	V/℃	Reference to 25℃, I_D=1mA
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	3.0	V	V_{DS}=V_{GS}, I_D=250uA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	25	uA	V_{DS}=30V, V_{GS}=0
Drain-Source Leakage Current(Tj=70℃)		-	-	250	uA	V_{DS}=24V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	26	mΩ	V_{GS}=10V, I_D=4A
		-	-	40		V_{GS}=4.5V, I_D=3A
Total Gate Charge[2]	Q_g	-	5.4	-	nC	I_D=4A V_{DS}=24V V_{GS}=5V
Gate-Source Charge	Q_{gs}	-	1.3	-		
Gate-Drain ("Miller") Change	Q_{gd}	-	3.6	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	3.6	-	ns	V_{DS}=15V I_D=1A V_{GS}=10V R_G=3.3Ω R_D=1.9Ω
Rise Time	T_r	-	19.8	-		
Turn-off Delay Time	$T_{d(off)}$	-	13	-		
Fall Time	T_f	-	3.2	-		
Input Capacitance	C_{iss}	-	260	-	pF	V_{GS}=0V V_{DS}=25V f=1.0MHz
Output Capacitance	C_{oss}	-	144	-		
Reverse Transfer Capacitance	C_{rss}	-	13	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage[2]	V_{SD}	-	-	1.3	V	I_S=2A, V_{GS}=0V, Tj=25℃
Continuous Source Current(Body Diode)	I_S	-	-	4	A	V_D= V_G=0V, V_S=1.3V
Pulsed Source Current(Body Diode)[1]	I_{SM}	-	-	20	A	

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

2. Pulse width≦300us, duty cycle≦2%.

Characteristics Curve

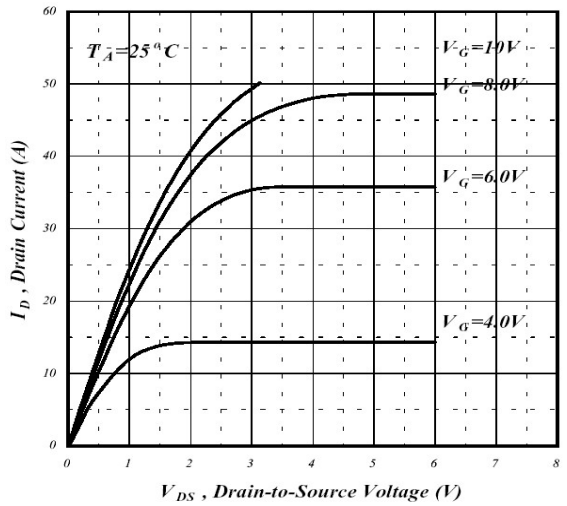


Fig 1. Typical Output Characteristics

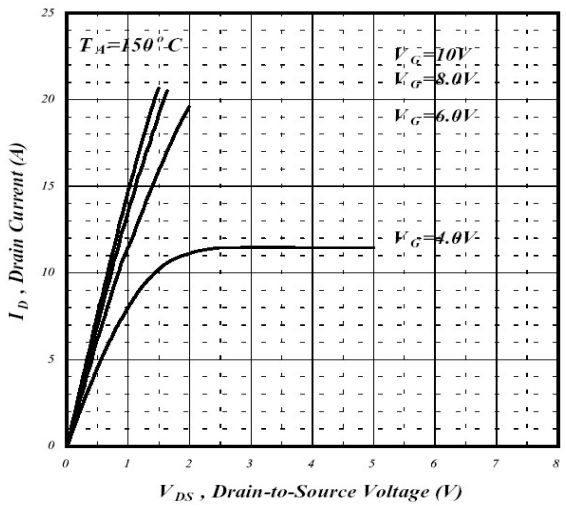


Fig 2. Typical Output Characteristics

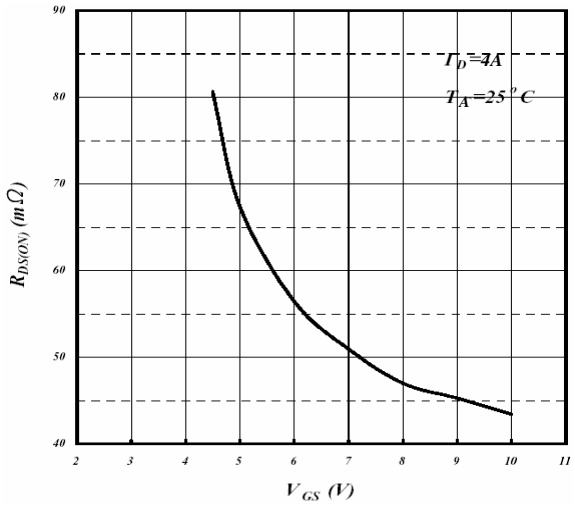


Fig 3. On-Resistance v.s. Gate Voltage

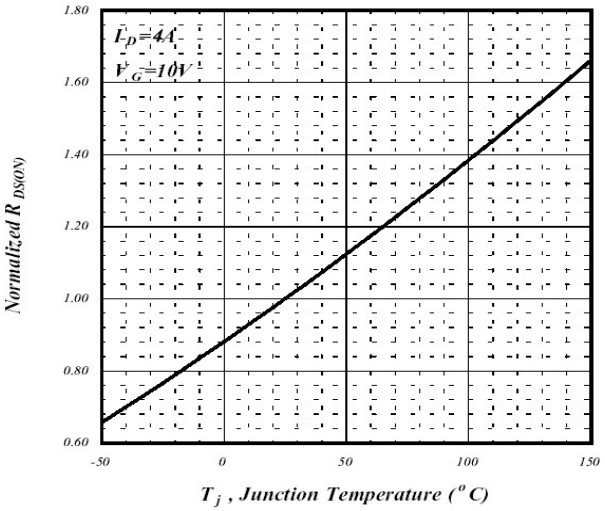


Fig 4. Normalized On-Resistance v.s. Junction Temperature

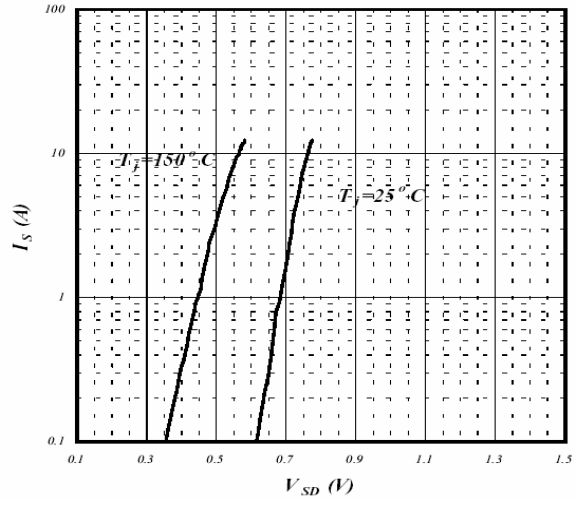


Fig 5. Forward Characteristics of Reverse Diode

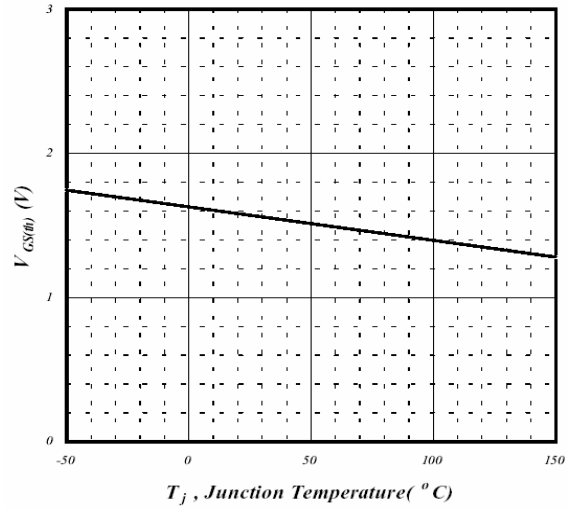


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

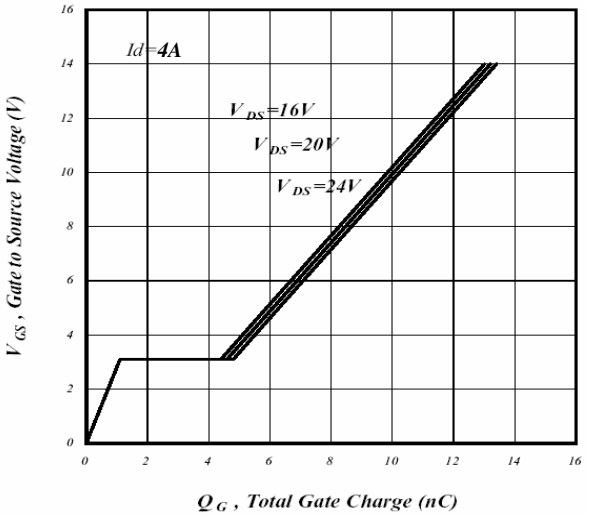


Fig 7. Gate Charge Characteristics

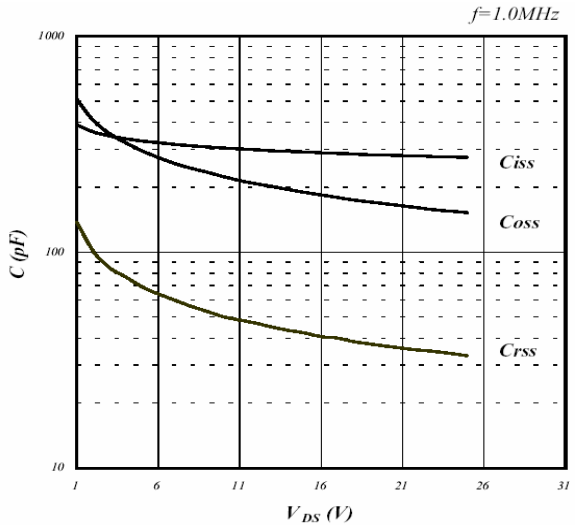


Fig 8. Typical Capacitance Characteristics

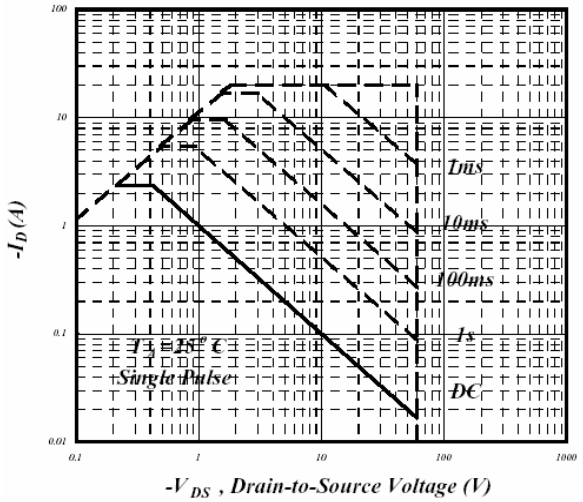


Fig 9. Maximum Safe Operating Area

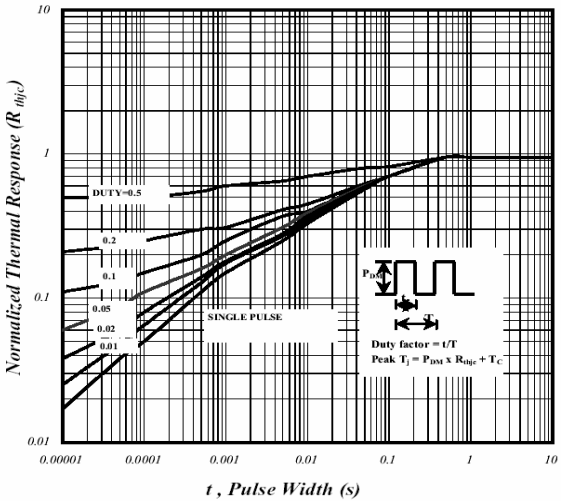


Fig 10. Effective Transient Thermal Impedance

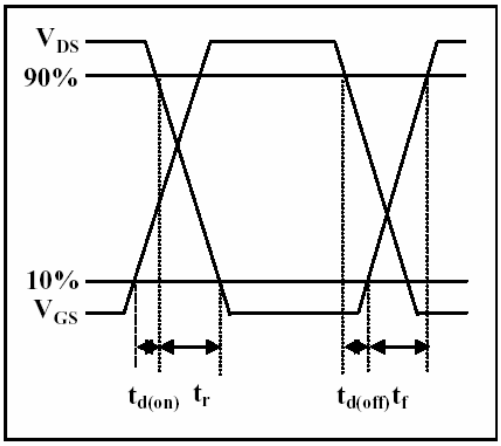


Fig 11. Switching Time Circuit

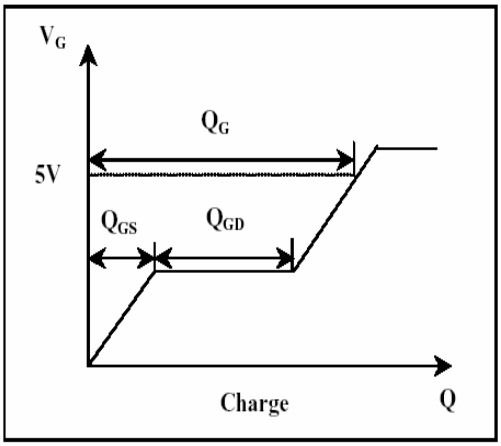


Fig 12. Gate Charge Waveform

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