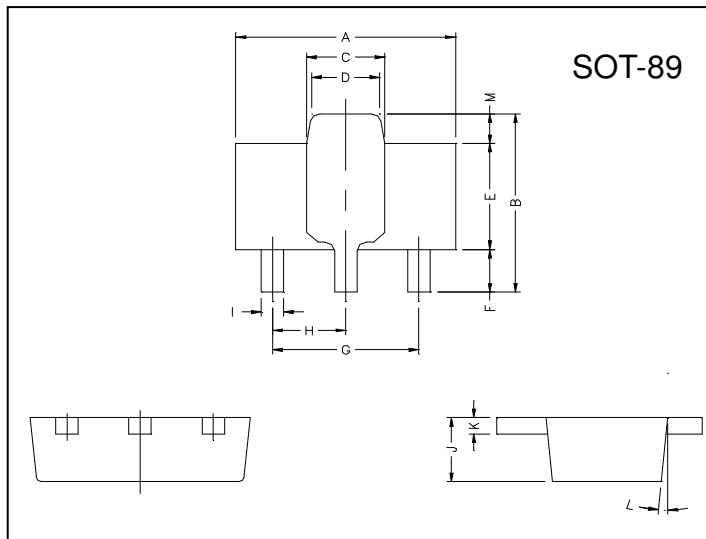


GM3055 N-CHANNEL ENHANCEMENT MODE POWER MOSFET

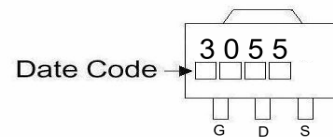
Description

The SOT-89 package is universally preferred for all commercial industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Package Dimensions



Marking :



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.4	4.6	G	3.00	REF.
B	4.05	4.25	H	1.50	REF.
C	1.50	1.70	I	0.40	0.52
D	1.30	1.50	J	1.40	1.60
E	2.40	2.60	K	0.35	0.41
F	0.89	1.20	L	5°	TYP.
			M	0.70	REF.

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Ratings	Unit
Operating Junction Temperature Range	Tj	-55 ~ +150	°C
Storage Temperature Range	Tstg	-55 ~ +150	°C
Drain - Source Voltage	Vds	30	V
Gate - Source Voltage	Vgs	±20	V
Continuous Drain Current , VGS@10V	Id@TC=25°C	15	A
Continuous Drain Current , VGS@10V	Id@TC=100°C	9	A
Pulsed Drain Current ¹	IDM	50	A
Total Power Dissipation	Pd@TC=25°C	15	W

Thermal Data

Symbol	parameter	Value	Unit
Rthj-case	Thermal Resistance junction-case Max.	3	°C/W
Rthj-amb	Thermal Resistance junction-ambient Max.	42	°C/W

Source –Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
Is	Continuous source Current (Body Diode)	Vd=Vg=0V, Vs=1.3V	-	-	15	A
ISM	Pulsed Source Current(Body Diode) ¹		-	-	50	A
Vsd	Forward On Voltage ²	Tj=25°C, Is=15A, Vgs=0V	-	-	1.3	V

Notes:

1. Pulse width limited by safe operating area.
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

Electrical Characteristics @T_j = 25°C (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	30	-	-	V
$\Delta BV_{DSS}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D =1mA	-	0.037	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =8A	-	-	80	m Ω
		V _{GS} =4.5V, I _D =6A	-	-	100	m Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μ A	1	-	3	V
I _{DSS}	Drain-Source Leakage Current(T _j =25°C)	V _{DS} =30V, V _{GS} =0V	-	-	25	μ A
	Drain-Source Leakage Current(T _j =150°C)	V _{DS} =24V, V _{GS} =0V	-	-	250	μ A
I _{GSS}	Gate-Source Leakage	V _{GS} = ± 20 V	-	-	± 100	nA
Q _g	Total Gate Charge ²	I _D =8A	-	5.4	-	nC
Q _{gs}	Gate-Source Charge	V _{DS} =24V	-	1.3	-	nC
Q _{gd}	Gate-Drain ("Miller)Charge	V _{GS} =5V	-	3.6	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =15V	-	3.6	-	nS
t _r	Rise Time	I _D =8A	-	19.8	-	nS
t _{d(off)}	Turn-off Delay Time	R _G =3.4 Ω , V _{GS} =10V	-	13	-	nS
t _f	Fall Time	R _D =1.9 Ω	-	3.2	-	nS
C _{iss}	Input Capacitance	V _{GS} =0V	-	260	-	pf
C _{oss}	Output Capacitance	V _{DS} =25V	-	144	-	pf
Cr _{ss}	Reverse Transfer Capacitance	f=1.0MHZ	-	13	-	pf

Characteristics Curve

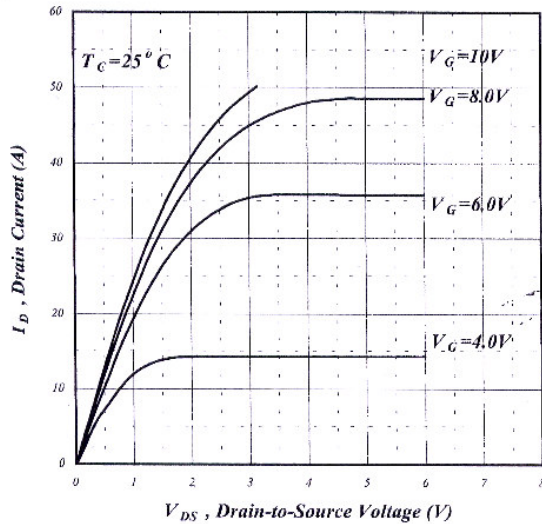


Fig 1. Typical Output Characteristics

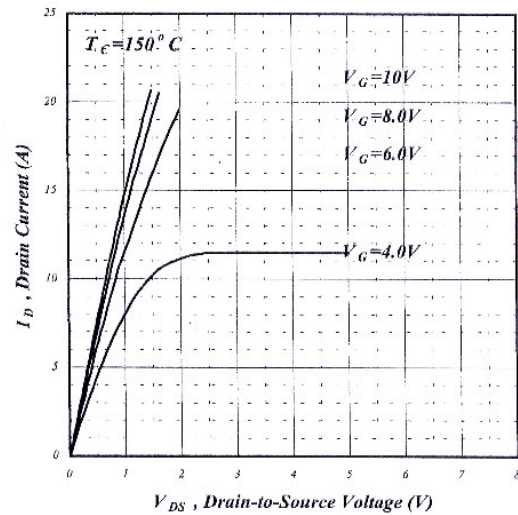


Fig 2. Typical Output Characteristics

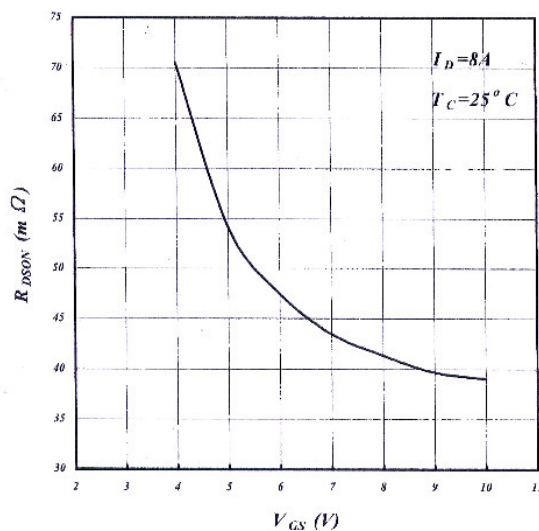
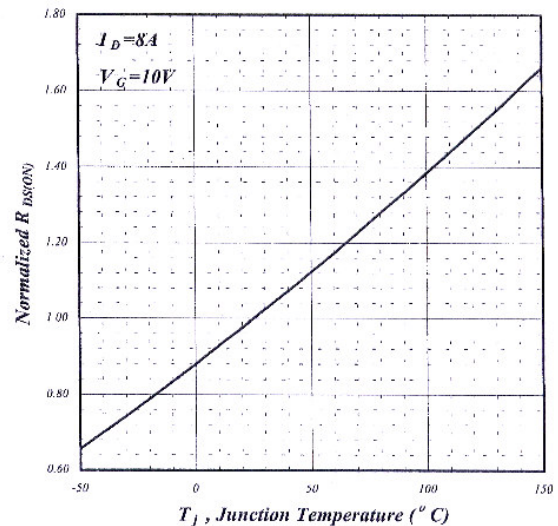


Fig 3. On-Resistance v.s. Gate Voltage

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

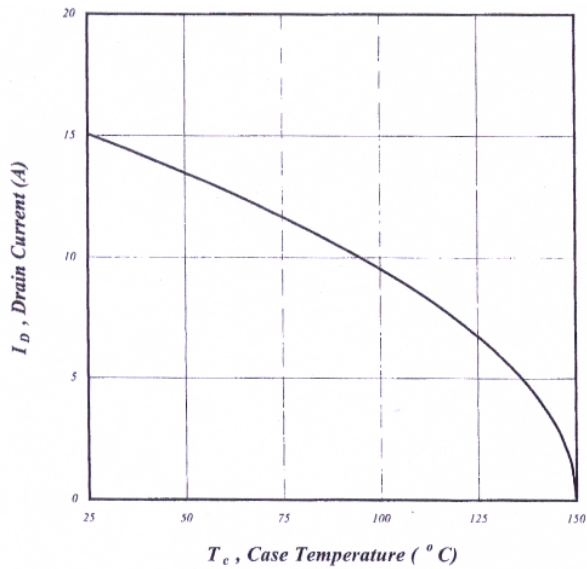


Fig 5. Maximum Drain Current v.s. Case Temperature

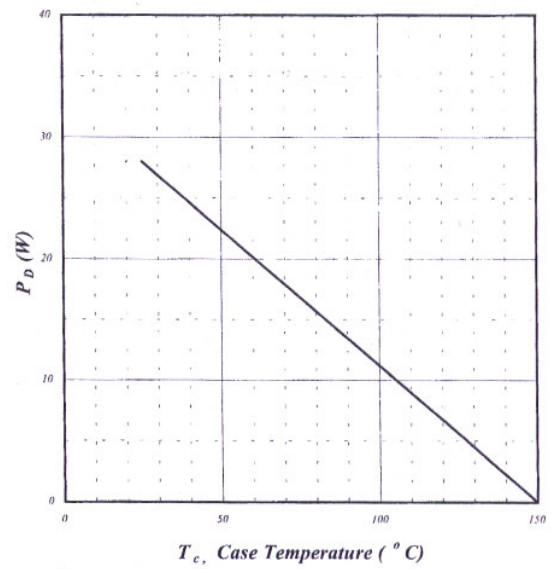


Fig 6. Typical Power Dissipation

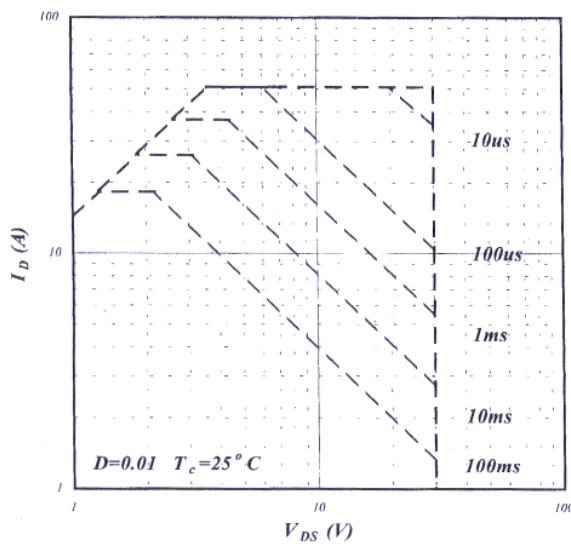


Fig 7. Maximum Safe Operating Area

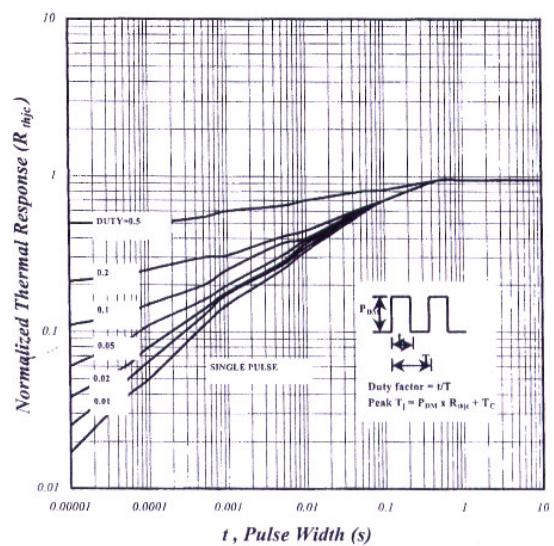


Fig 8. Effective Transient Thermal Impedance

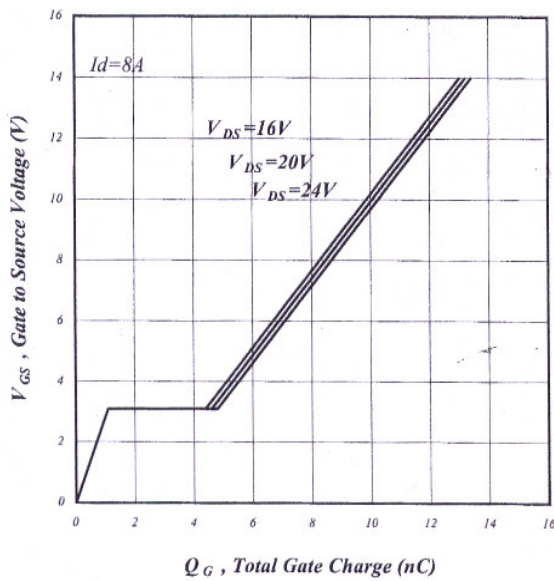


Fig 9. Gate Charge Characteristics

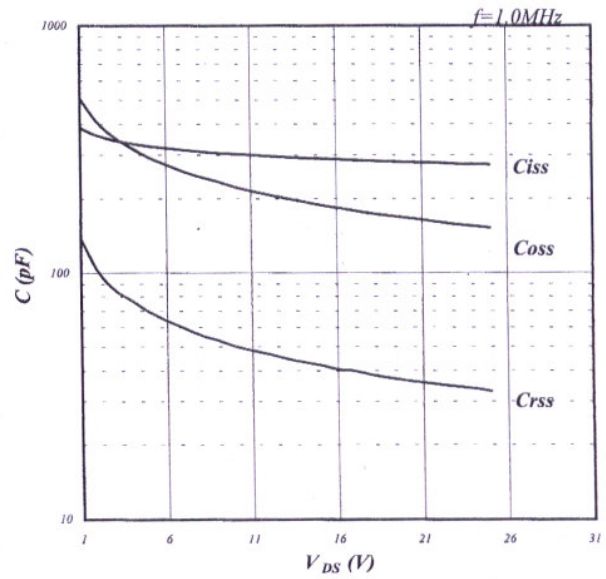


Fig 10. Typical Capacitance Characteristics

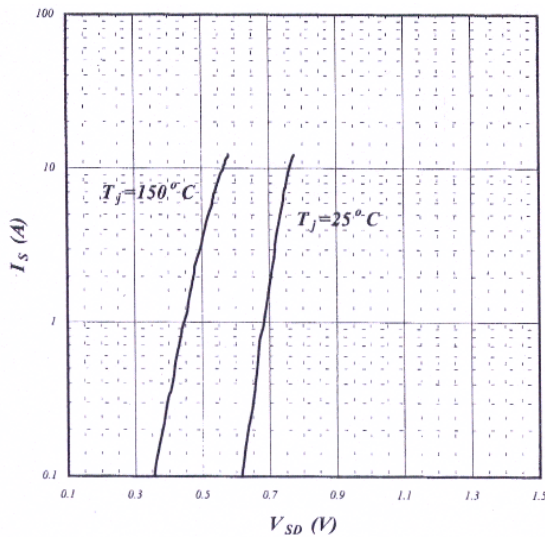


Fig 11. Forward Characteristic of Reverse Diode

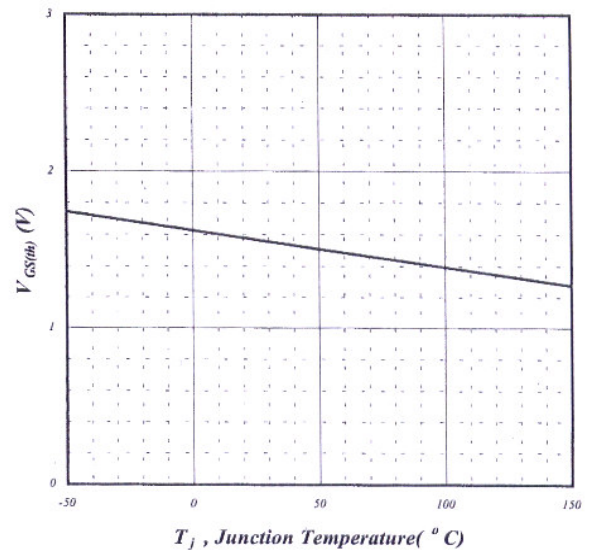


Fig 12. Gate Threshold Voltage v.s. Junction Temperature

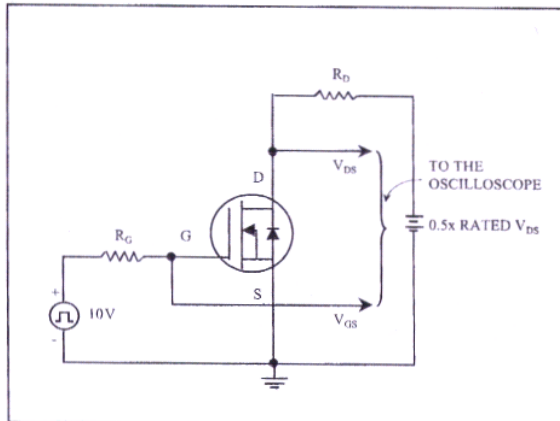


Fig 13. Switching Time Circuit

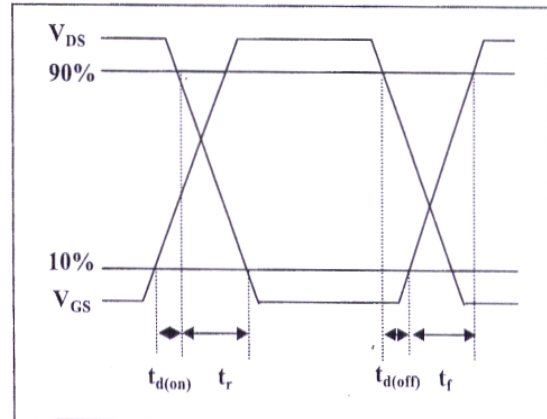


Fig 14. Switching Time Waveform

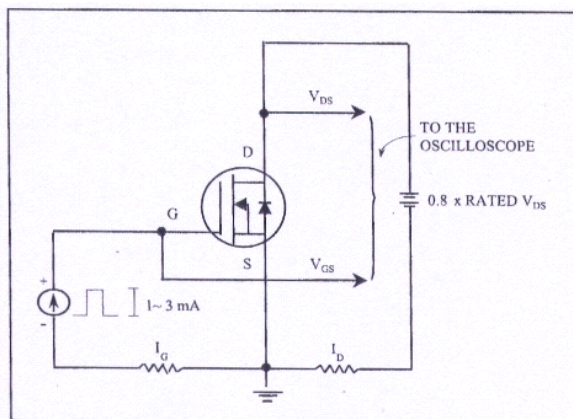


Fig 15. Gate Charge Circuit

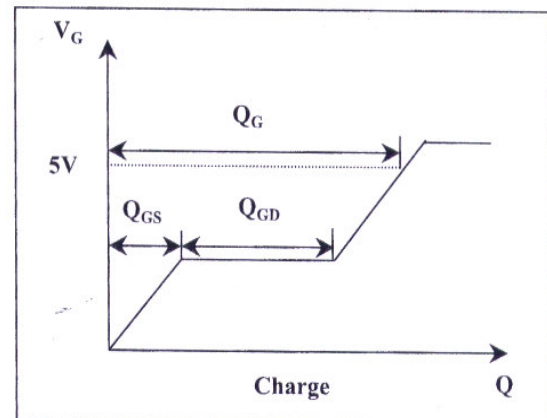


Fig 16. Gate Charge Waveform

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