

GU60N03

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	30V
RDS(ON)	16.5mΩ
ID	55A

Description

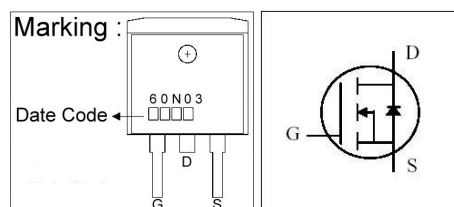
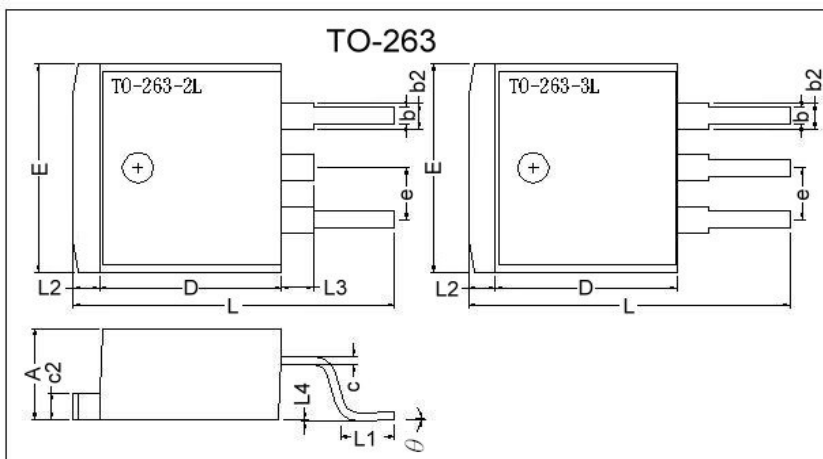
The GU60N03 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The TO-263 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage application such as DC/DC converters and high efficiency switching circuit.

Features

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

Package Dimensions



REF.	Min.	Max.	REF.	Min.	Max.
A	4.40	4.80	c2	1.25	1.45
b	0.76	1.00	b2	1.17	1.47
L4	0.00	0.30	D	8.6	9.0
c	0.36	0.5	e	2.54	REF.
L3	1.50	REF.	L	14.6	15.8
L1	2.29	2.79	θ	0°	8°
E	9.80	10.4	L2	1.27	REF.

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, $V_{GS}@10V$	$I_D @T_C=25^{\circ}C$	55	A
Continuous Drain Current, $V_{GS}@10V$	$I_D @T_C=100^{\circ}C$	35	A
Pulsed Drain Current ¹	I_{DM}	215	A
Total Power Dissipation	$P_D @T_C=25^{\circ}C$	62.5	W
Linear Derating Factor		0.5	W/°C
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-case Max.	R_{thj-c}	2.0	°C/W
Thermal Resistance Junction-ambient Max.	R_{thj-a}	62	°C/W

Electrical Characteristics (T_j = 25°C 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	$\Delta BV_{DSS} / \Delta T_j$	-	0.037	-	V/°C	Reference to 25°C, I _D =1mA
Gate Threshold Voltage	V _{GS(th)}	1.0	-	3.0	V	V _{DS} =V _{GS} , I _D =250uA
Forward Transconductance	g _{fs}	-	30	-	S	V _{DS} =10V, I _D =28A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V
Drain-Source Leakage Current(T _j =25°C)	I _{DSS}	-	-	25	uA	V _{DS} =30V, V _{GS} =0
Drain-Source Leakage Current(T _j =150°C)		-	-	250	uA	V _{DS} =24V, V _{GS} =0
Static Drain-Source On-Resistance	R _{DS(ON)}	-	14.5	16.5	mΩ	V _{GS} =10V, I _D =28A
		-	21.5	25		V _{GS} =4.5V, I _D =22A
Total Gate Charge ²	Q _g	-	22.4	-	nC	I _D =28A
Gate-Source Charge	Q _{gs}	-	2.7	-		V _{DS} =24V
Gate-Drain ("Miller") Charge	Q _{gd}	-	14	-		V _{GS} =5V
Turn-on Delay Time ²	T _{d(on)}	-	7.4	-	ns	V _{DS} =15V
Rise Time	T _r	-	81	-		I _D =28A
Turn-off Delay Time	T _{d(off)}	-	24	-		V _{GS} =10V
Fall Time	T _f	-	18	-		R _G =3.3Ω R _D =0.53Ω
Input Capacitance	C _{iss}	-	950	-	pF	V _{GS} =0V
Output Capacitance	C _{oss}	-	440	-		V _{DS} =25V
Reverse Transfer Capacitance	C _{rss}	-	145	-		f=1.0MHz

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V _{SD}	-	-	1.3	V	I _S =55A, V _{GS} =0V, T _j =25°C
Continuous Source Current (Body Diode)	I _S	-	-	55	A	V _D =V _G =0V, V _S =1.3V
Pulsed Source Current (Body Diode) ¹	I _{SM}	-	-	215	A	

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

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

Characteristics Curve

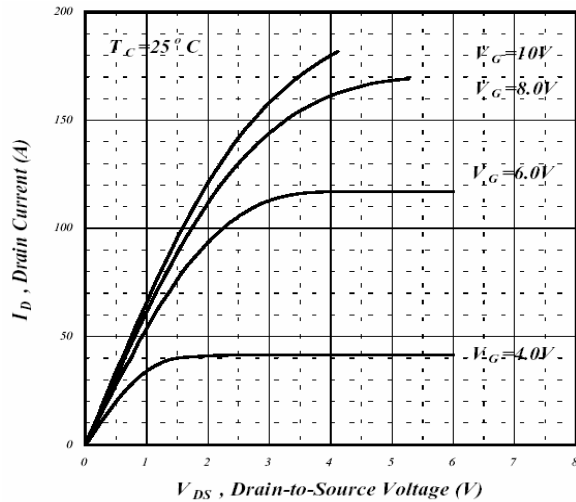


Fig 1. Typical Output Characteristics

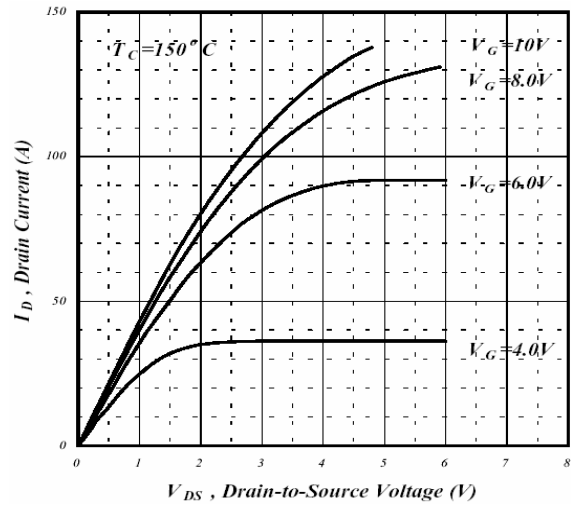


Fig 2. Typical Output Characteristics

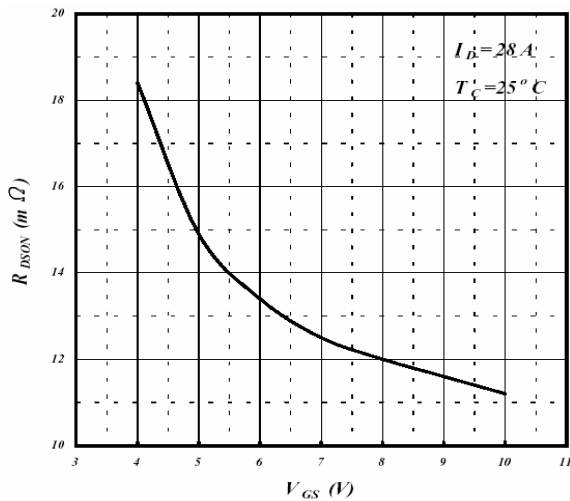


Fig 3. On-Resistance v.s. Gate Voltage

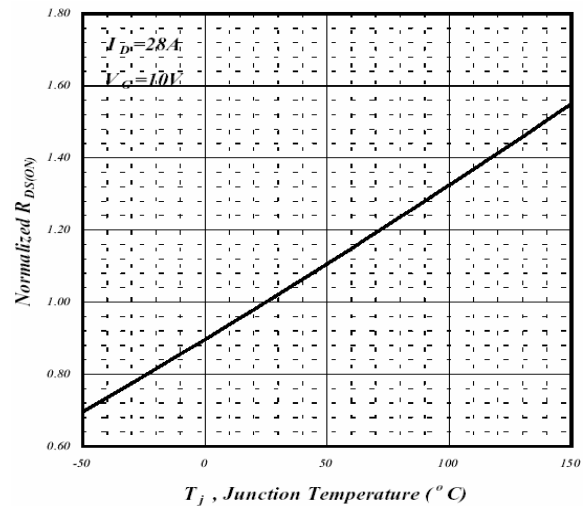


Fig 4. Normalized On-Resistance v.s. Junction Temperature

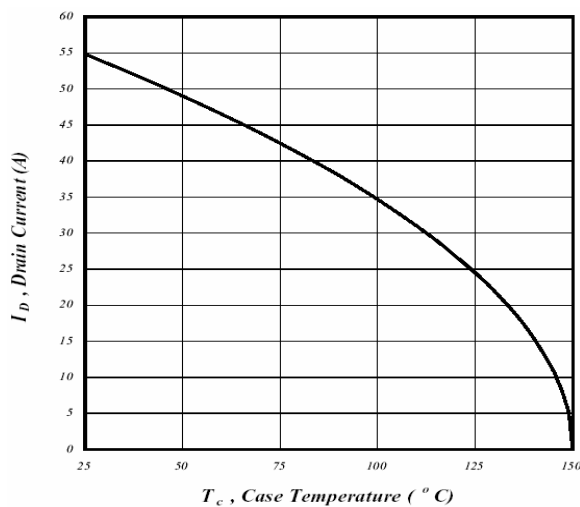


Fig 5. Maximum Drain Current v.s. Case Temperature

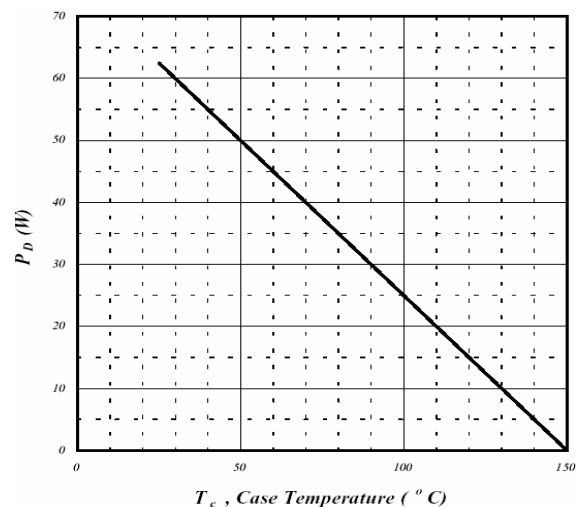


Fig 6. Type Power Dissipation

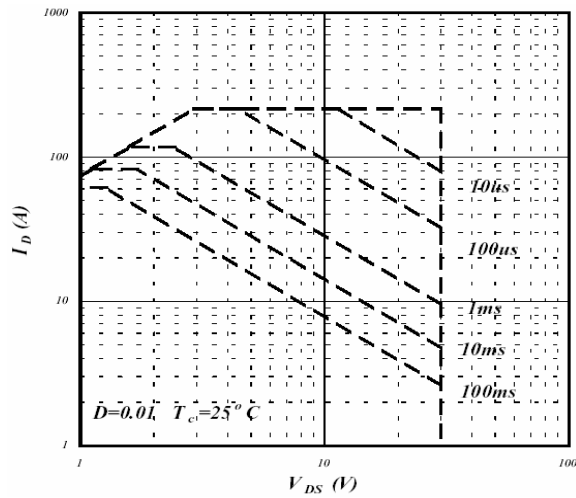


Fig 7. Maximum Safe Operating Area

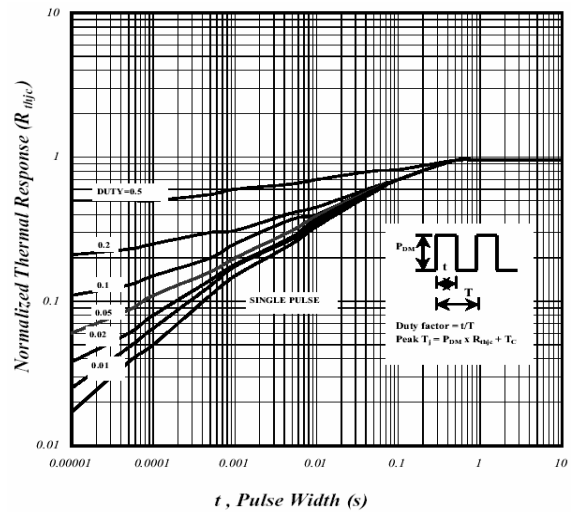


Fig 8. Effective Transient Thermal Impedance

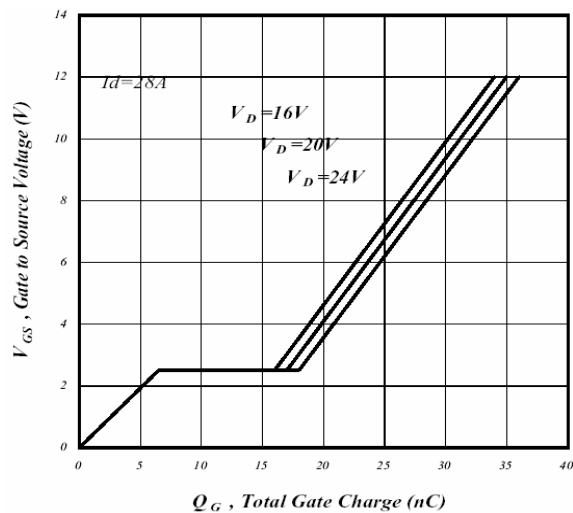


Fig 9. Gate Charge Characteristics

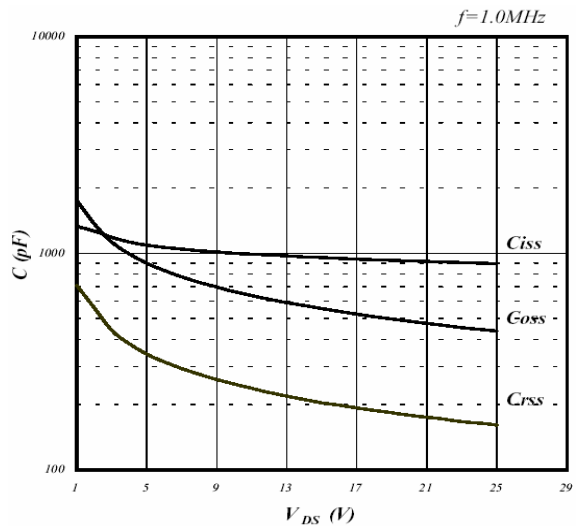


Fig 10. Typical Capacitance Characteristics

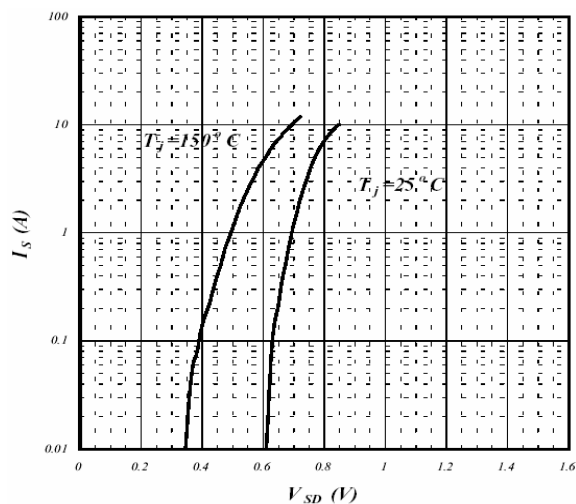


Fig 11. Forward Characteristics of Reverse Diode

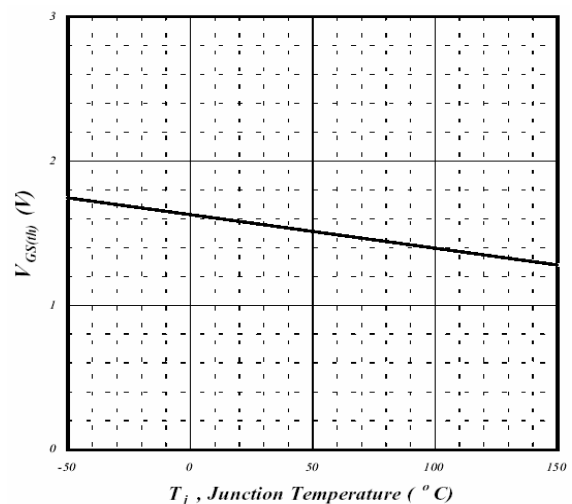


Fig 12. Gate Threshold Voltage v.s. Junction Temperature

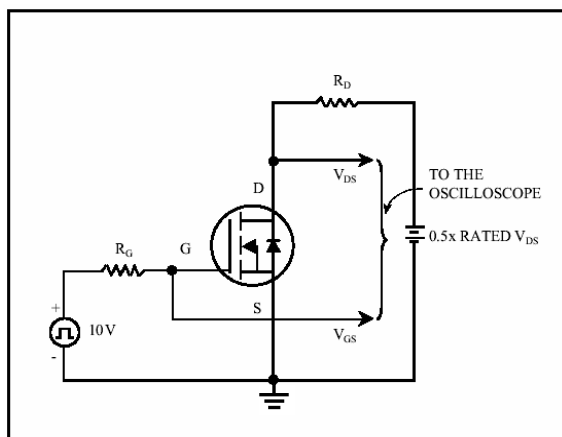


Fig 13. Switching Time Circuit

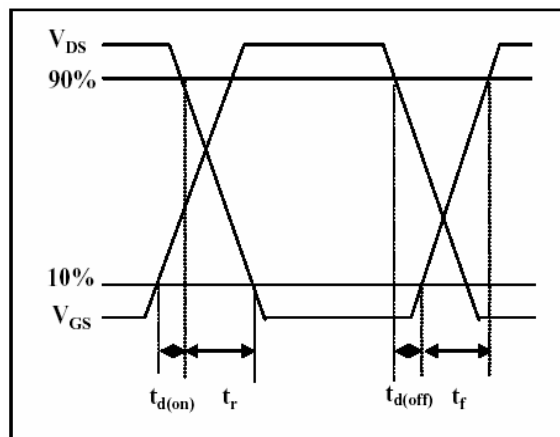


Fig 14. Switching Time Waveform

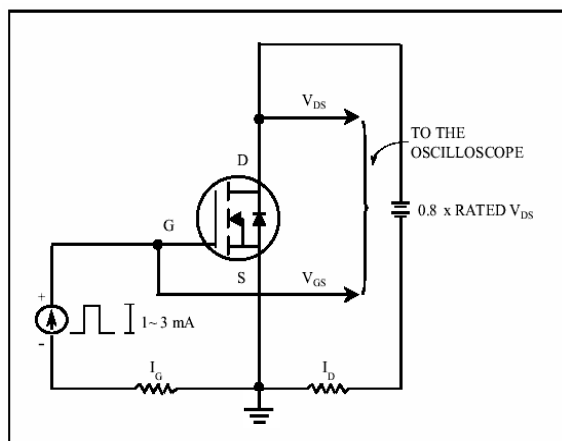


Fig 15. Gate Charge Circuit

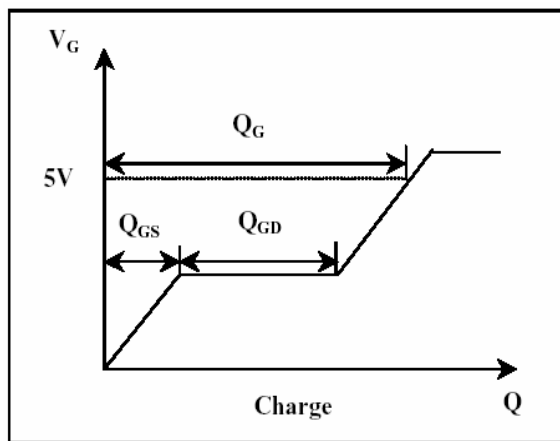


Fig 16. Gate Charge Waveform

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Head Office And Factory:

- **Taiwan:** No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- **China:** (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165