

GTM CORPORATION

ISSUED DATE :2006/03/01
REVISED DATE :

G138

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

VDSS	50V
RDS(ON)	3.5Ω
ID	500mA

Description

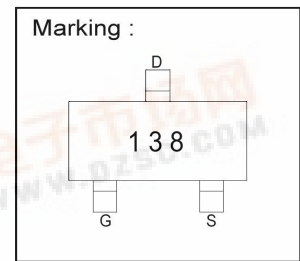
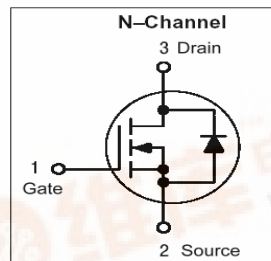
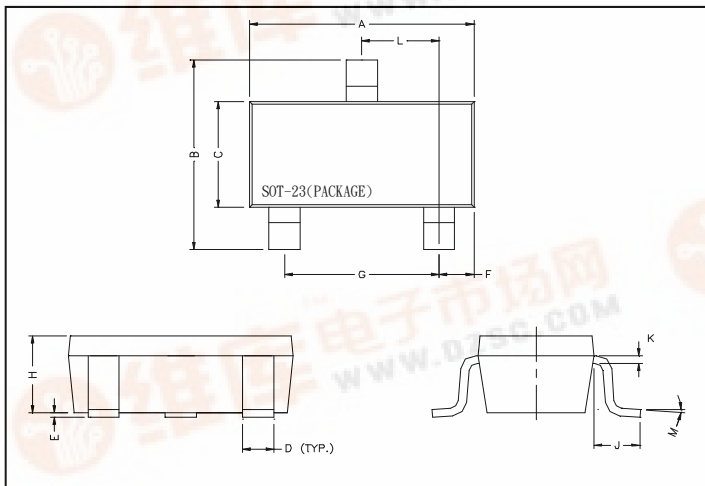
The G138 has been designed to minimize on-state resistance, while provide rugged, reliable and fast switching performance.

The G138 is universally used for all commercial-industrial surface mount applications.

Features

- *Simple Drive Requirement
- *Small Package Outline

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ³ , $V_{GS}@10V$	$I_D @TA=25^{\circ}C$	500	mA
Continuous Drain Current ³ , $V_{GS}@10V$	$I_D @TA=70^{\circ}C$	400	mA
Pulsed Drain Current ^{1,2}	I_{DM}	800	mA
Power Dissipation	$P_D @TA=25^{\circ}C$	225	mW
Linear Derating Factor		0.002	W/°C
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient ³ Max.	R_{thj-a}	556	°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}	50	-	-	V	V _{GS} =0, I _D =250uA
Gate Threshold Voltage	V _{GS(th)}	0.5	-	2.0	V	V _{DS} =V _{GS} , I _D =1mA
Forward Transconductance	g _{fs}	-	500	-	mS	V _{DS} =10V, I _D =220mA
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V
Drain-Source Leakage Current(T _j =25°C)	I _{DSS}	-	-	1	uA	V _{DS} =50V, V _{GS} =0
Static Drain-Source On-Resistance	R _{DS(ON)}	-	-	3.5	Ω	V _{GS} =10V, I _D =220mA
		-	-	6.0		V _{GS} =4.5V, I _D =220mA
Input Capacitance	C _{iss}	-	-	50	pF	V _{GS} =0V V _{DS} =25V f=1.0MHz
Output Capacitance	C _{oss}	-	-	25		
Reverse Transfer Capacitance	C _{rss}	-	-	5		

Source-Drain Diode

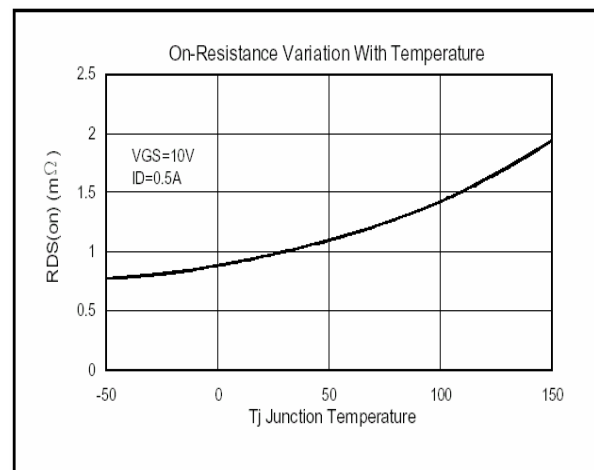
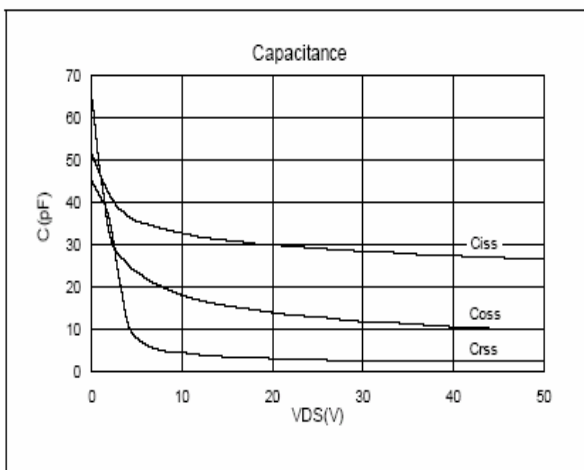
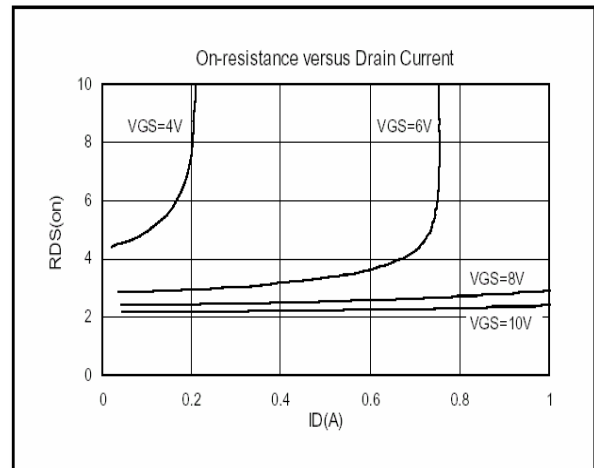
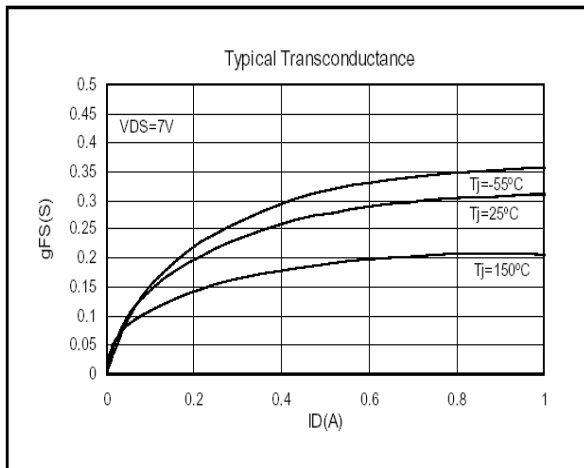
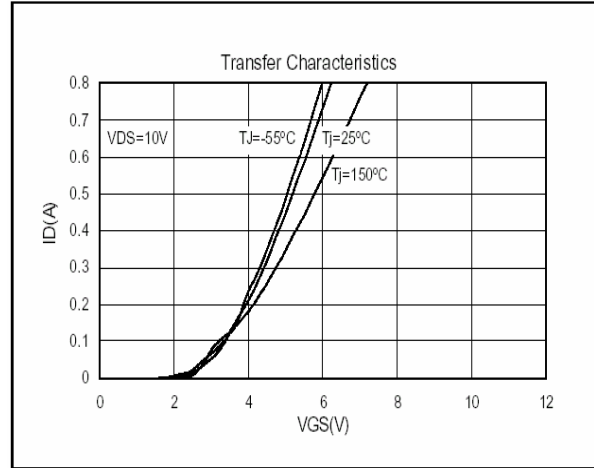
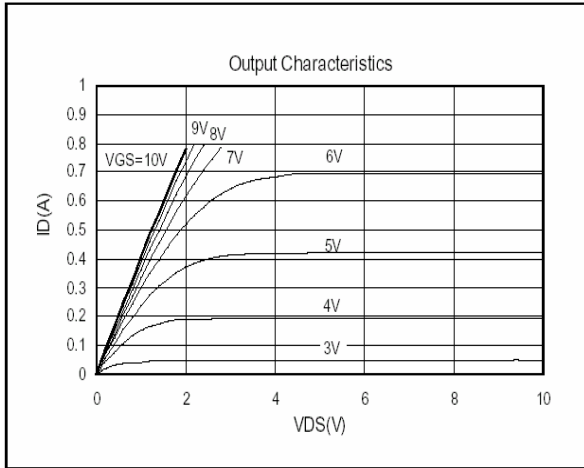
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V _{SD}	-	-	1.5	V	I _S =100mA, V _{GS} =0V

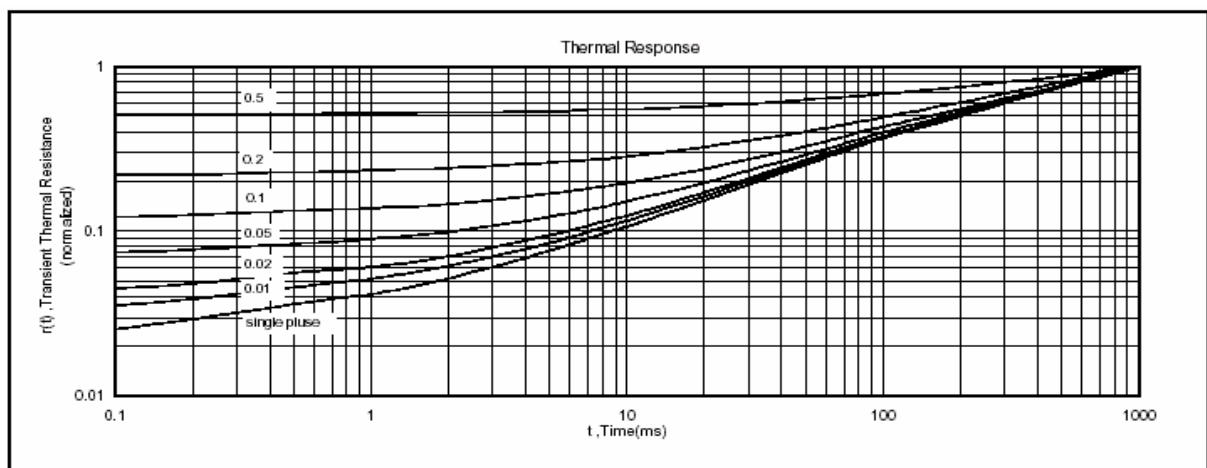
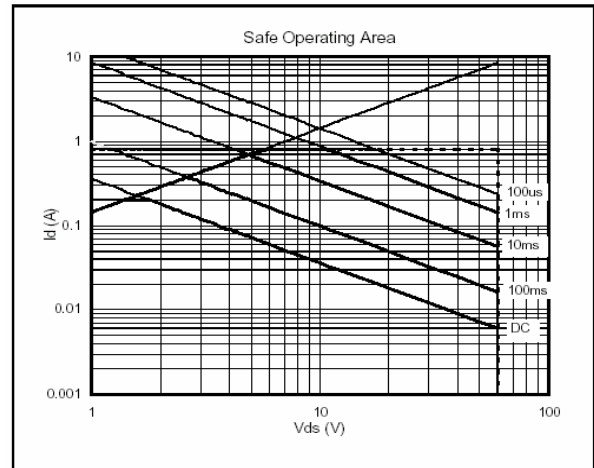
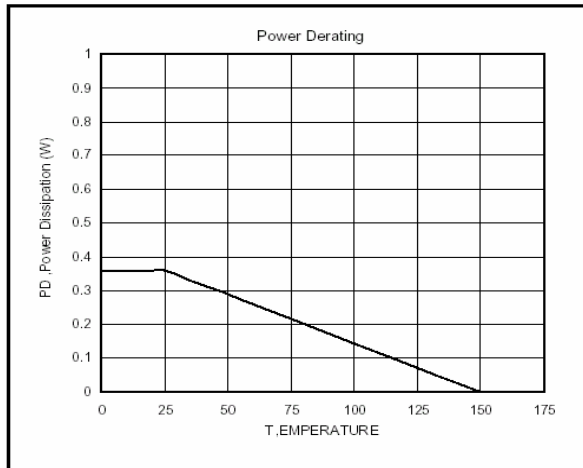
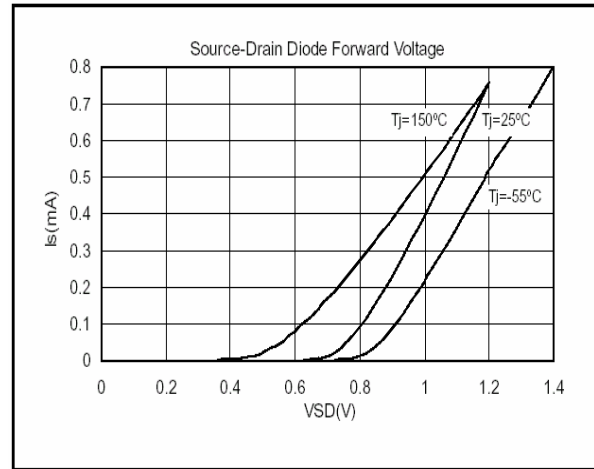
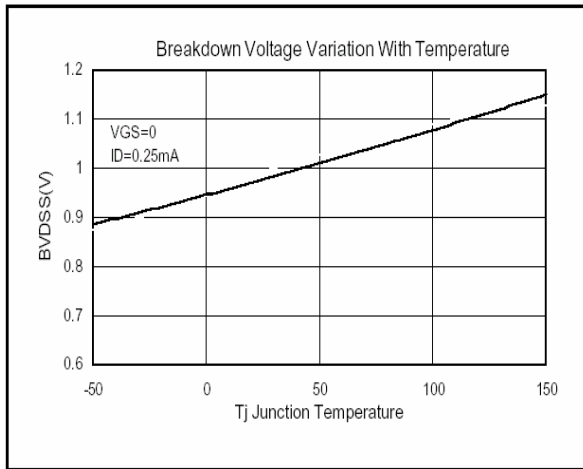
Notes: 1. Pulse width limited by Max. junction temperature.

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

3. Surface mounted on 1 in² copper pad of FR4 board; 270°C/W when mounted on Min. copper pad.

Characteristics Curve





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