

G138**N-CHANNEL ENHANCEMENT MODE POWER MOSFET**

BVDSS	50V
RDS(ON)	3.5Ω
ID	500mA

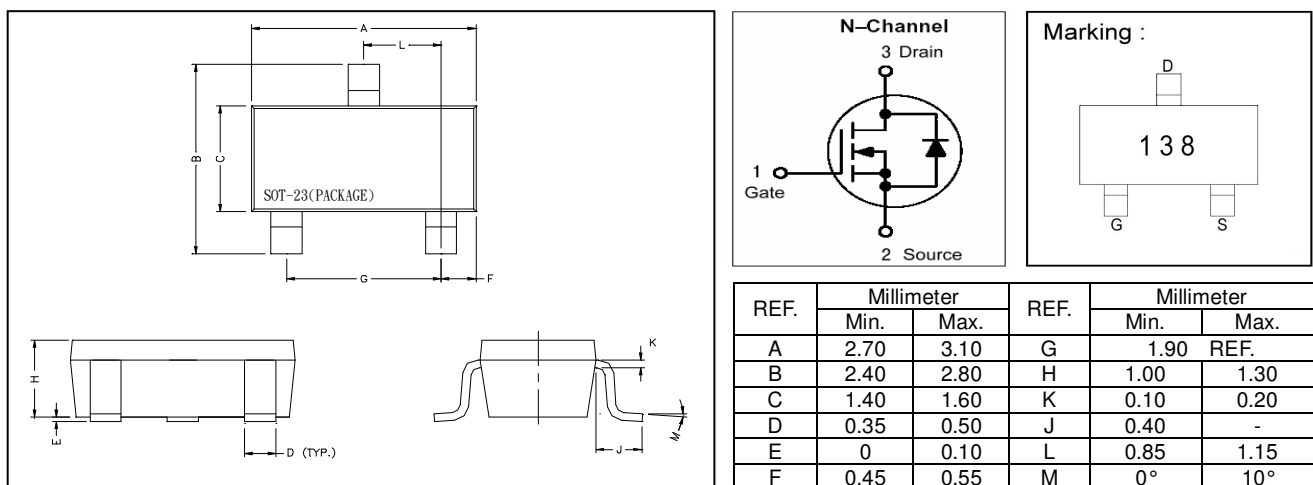
Description

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**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/ $^{\circ}C$
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ +150	$^{\circ}C$

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient ³ Max.	R_{thj-a}	556	$^{\circ}C/W$

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

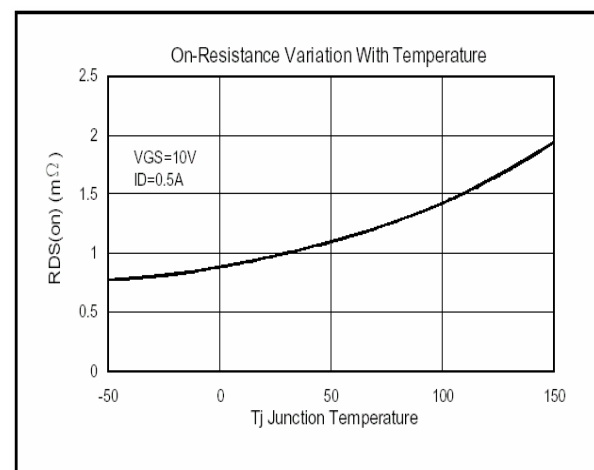
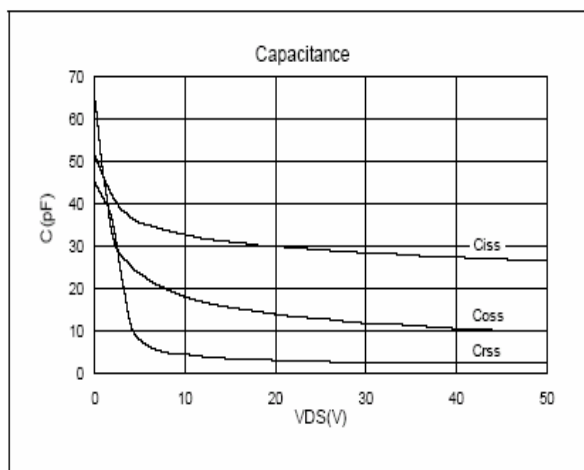
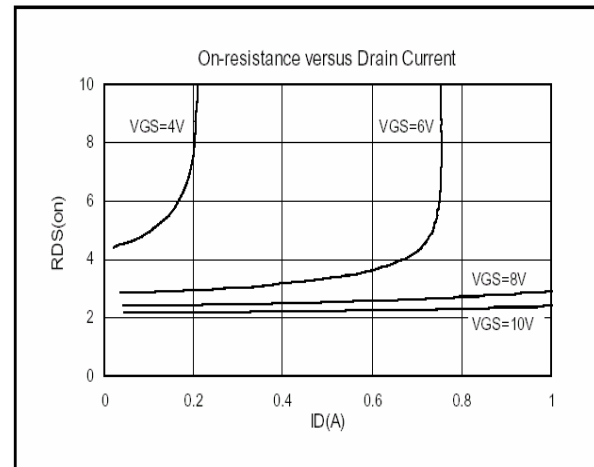
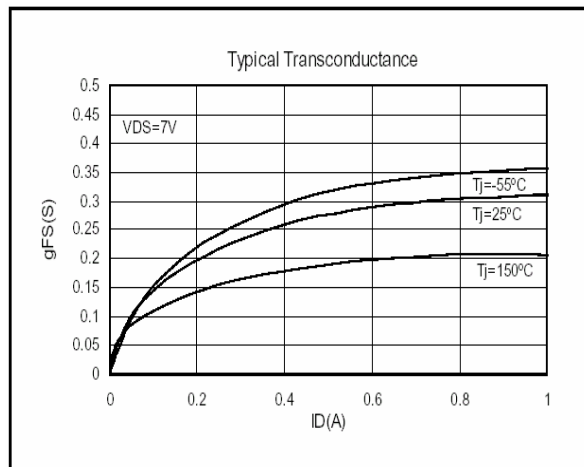
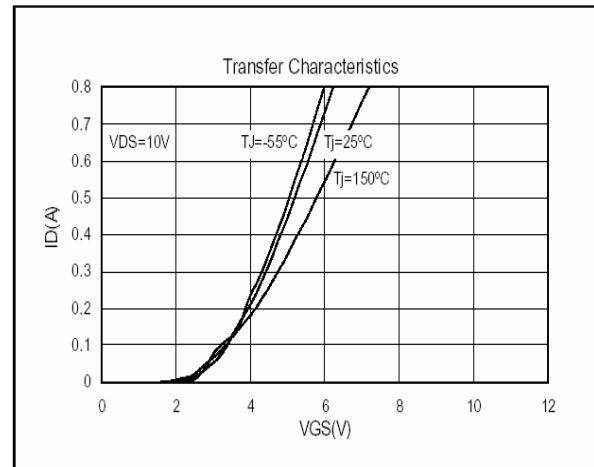
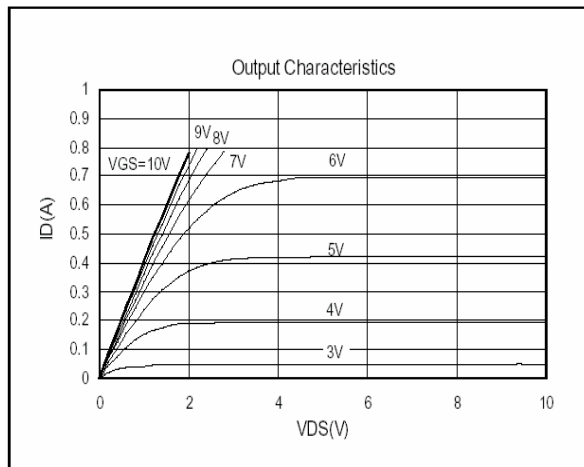
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V _{SD}	-	-	1.5	V	I _S =100mA, V _{GS} =0V

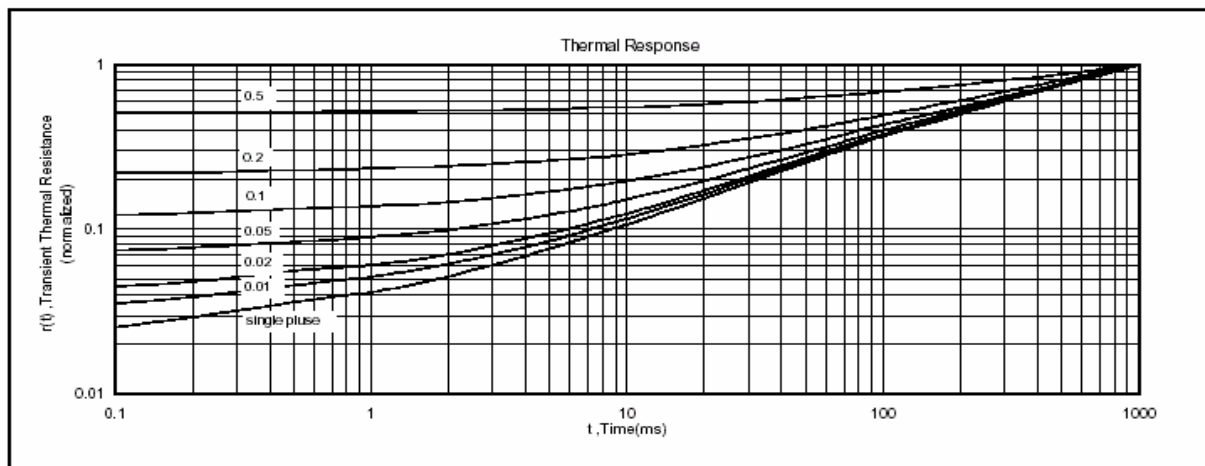
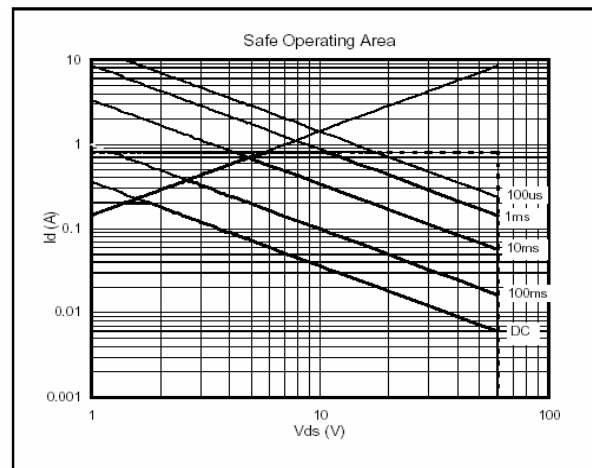
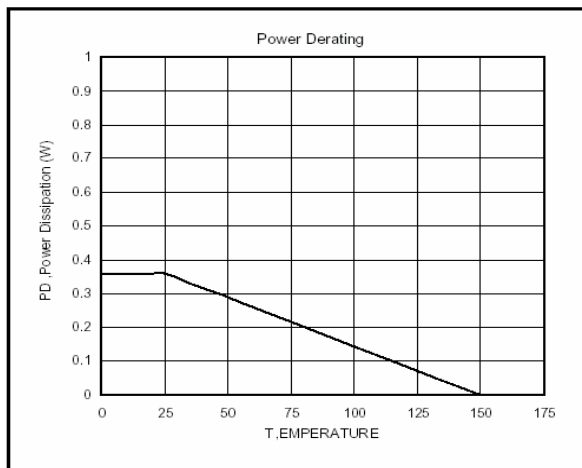
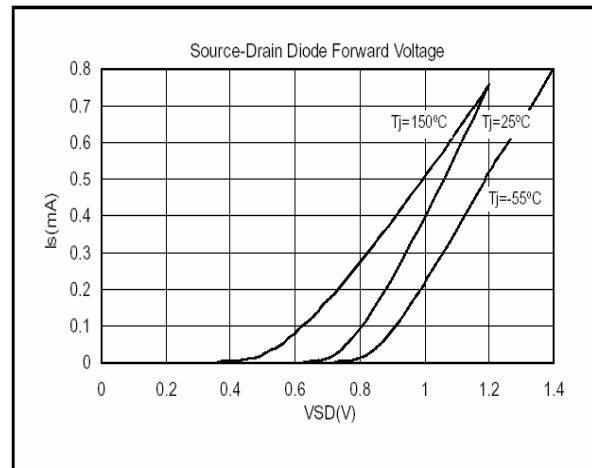
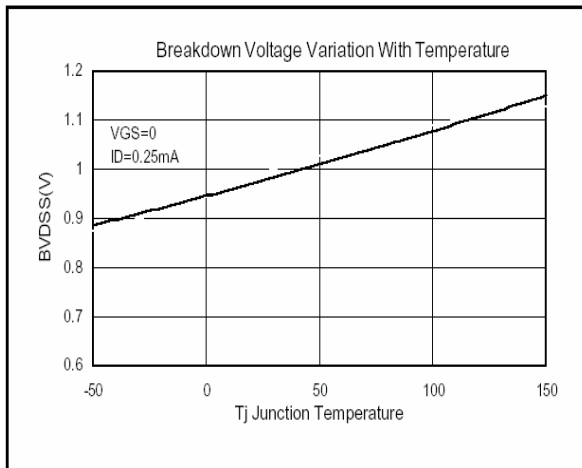
Notes: 1. Pulse width limited by Max. junction temperature.

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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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