GOSTONE

RoHS COMPLIANT

N-Channel 60V, 1.8Ω max, MOSFET

GMT182N06C1T

Product Summary

V_{DS} (V)	$R_{DS(on),max}$ (Ω)	I_D (A)
60	1.8@ V_{GS} = 10V	0.45

General Information

❖ **Handling**

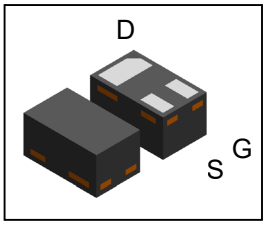
Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.

Features

- ❖ High Density Cell Design for Low RDS(ON)
- ❖ Voltage Controlled Small Signal Switch
- ❖ Rugged and Reliable
- ❖ High Saturation Current Capability
- ❖ ESD Protected up to 2.0KV(HBM)

Application

- ❖ Load Switch for Portable Devices
- ❖ Power Management Functions



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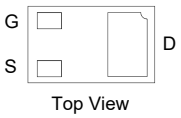
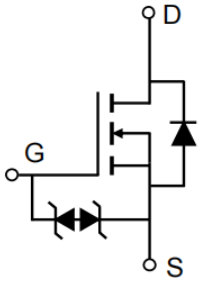


Top View

Equivalent circuit



Absolute Maximum Rating (Ta=25°C)

Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{DS}	60	V
Gate-source voltage		V_{GS}	±20	
Continuous drain current (V_{GS}=10V)(1)	T_A=25℃	I_D	0.45	A
	T_A=70℃		0.31	
Pulsed drain current(2)		$I_{D,pulse}$	1.3	
Power dissipation	T_A=25℃	P_D	0.48	W
	T_A=70℃		0.31	W
Operating junction and storage temperature range		T_J, T_{stg}	-55 to 150	℃

Thermal Characteristic (Ta=25°C)

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Ambient (3)	$R_{\theta JA}$	200	260	℃/W

Electrical characteristics (Ta=25°C ± 3°C)

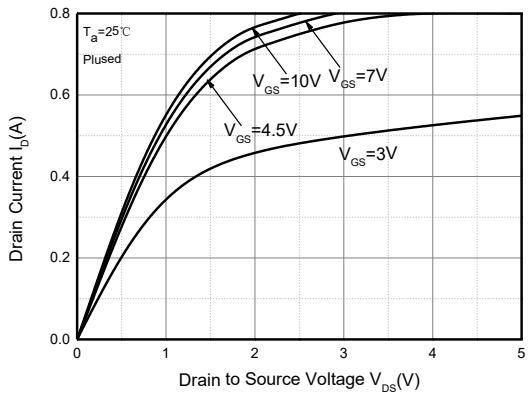
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Static parameter(4)						
Drain to source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250 μA	60			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	1.0	1.4	2.0	V
Gate-body leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±10	μA
Zero gate voltage drain current	I_{DSS}	V_{DS} = 60 V, V_{GS} = 0 V			1	μA
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 300m A		1.3	1.8	Ω
		V_{GS} = 4.5V, I_D = 100m A		1.5	2.2	
Forward transconductance(5)	g_{fs}	VDS = 5.0V, ID = 200mA		535		mS
Gate resistance	R_g	VGS = 0V, VDS = 0V, f = 1MHz		42		Ω
Dynamic(5)						
Total gate charge	Q_g	VDS = 30V, ID = 300mA VGS = 10V		0.8		nC
Gate-source charge	Q_{gs}			0.22		
Gate-drain charge	Q_{gd}			0.19		
Turn-on delay time	$t_{d(on)}$	VGS = 10V, VDS = 30V ID = 300mA, RGEN = 3.0Ω		5.8		ns
Rise time	t_r			2.9		
Turn-off delay time	$t_{d(off)}$			25		
Fall time	t_f			10.4		
Input capacitance	C_{iss}	V_{DS} = 30V, V_{GS} = 0 V, f = 1 MHz		19		pF
Output capacitance	C_{oss}			7.2		
Reverse transfer capacitance	C_{rss}			3.3		
Reverse Diode Characteristics(5)						
Diode forward voltage	V_{SD}	IS = 115mA, VGS = 0V		0.82	1.1	V
Diode Forward Current	I_s	TA = 25°C			0.45	A

Notes

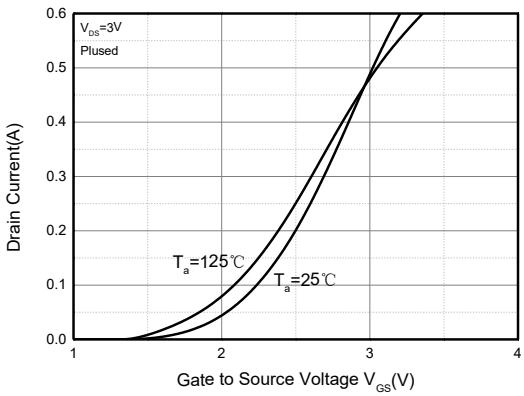
1. This current is chip limited, whiich is calculated based on Rthjc.
2. This current is calculated on single pulse with 10μs Pulse & Duty Cycle = 1%.
3. Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area.
4. Short duration pulse test used to minimize self-heating effect.
5. Defined by design, not subject to production.

Electrical characteristics diagrams

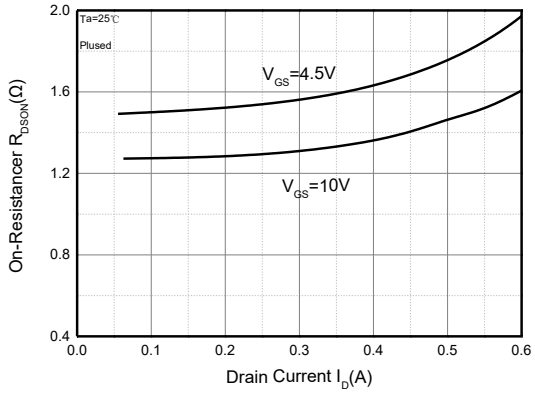
Output Characteristics



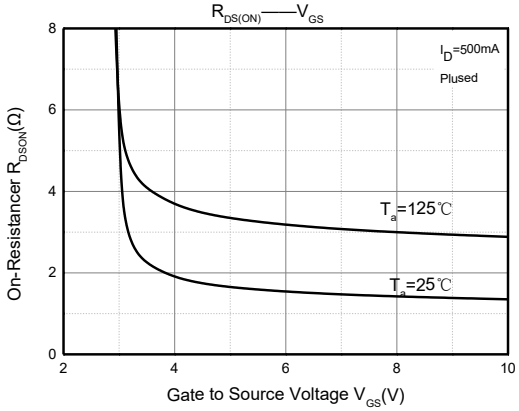
Transfer Characteristics



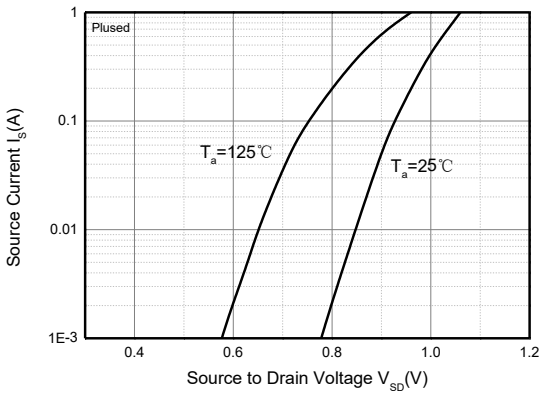
RDS(ON)——ID



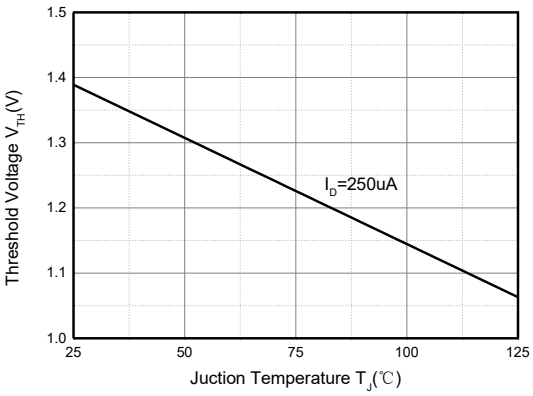
RDS(ON)——VGS



IS——VSD

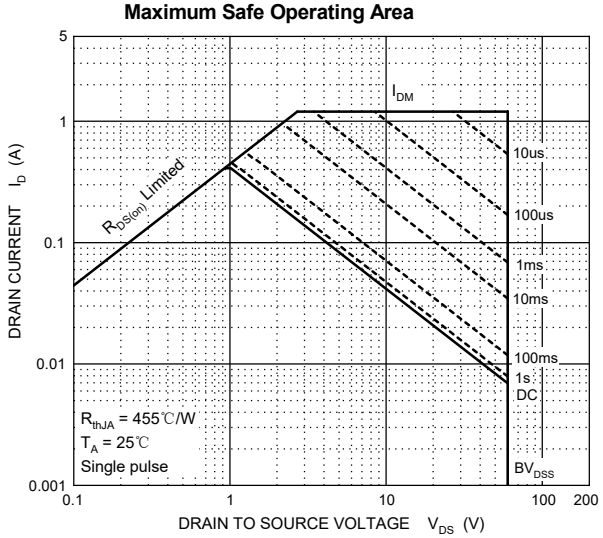


Threshold Voltage

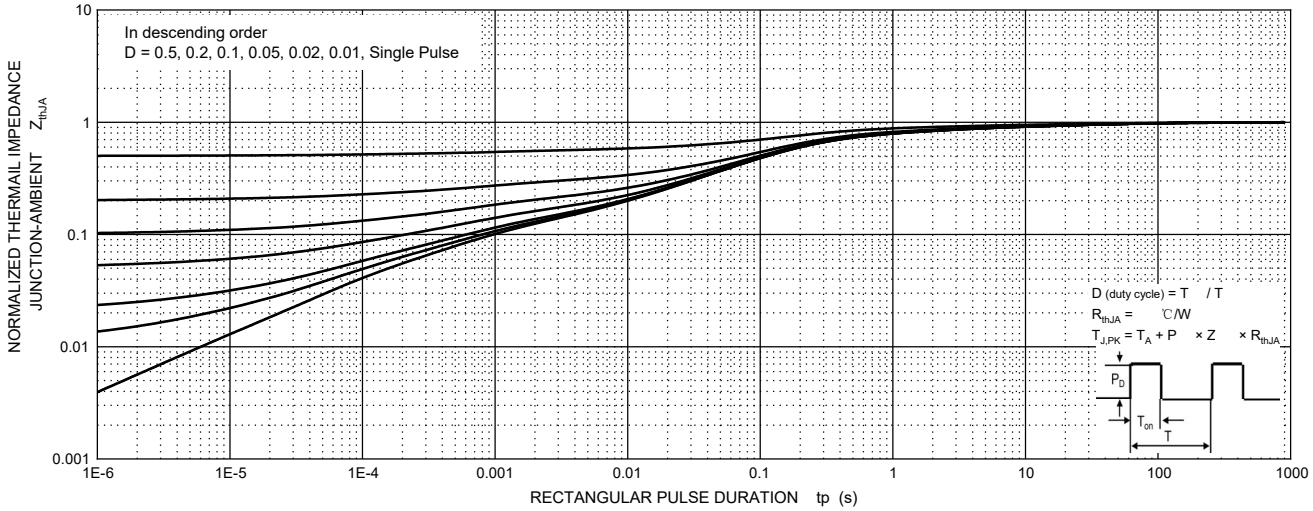


Electrical characteristics diagrams

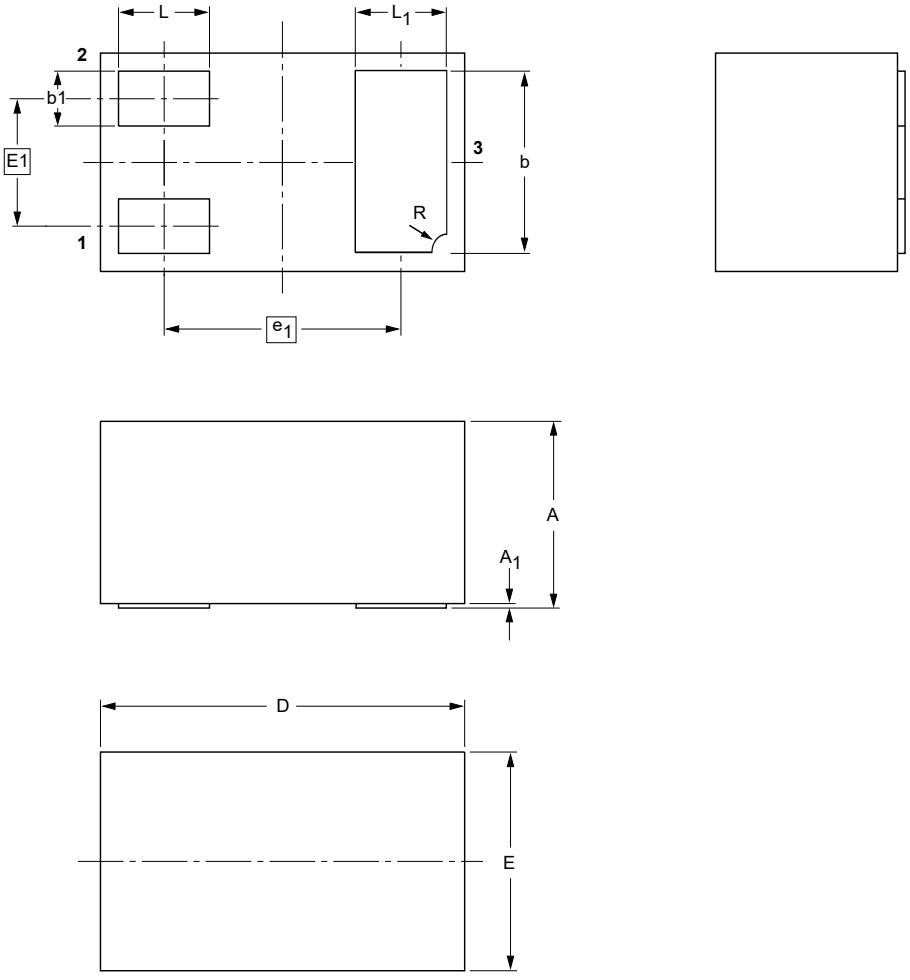
Maximum Safe Operating Area



Transient Thermal Impedance, Junction-Ambient



Package outline dimensions DFN1006-3L



DIMENSIONS (mm are the original dimensions)

UNIT	A(1)	A1 max.	b1	b	D	E	E1	e1	L	L1	R
mm	0.40 0.34	0.05	0.20 0.10	0.55 0.45	1.05 0.95	0.65 0.55	0.35	0.65	0.30 0.20	0.30 0.20	0.15 0.05

Revision History

Revision	Date	Subjects (major changes since last revision)
1	2024-11-06	Release of final version
2	2026-06-12	Update POD

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