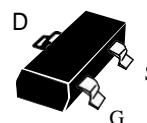


N-Channel High Density Trench MOSFET

Features:

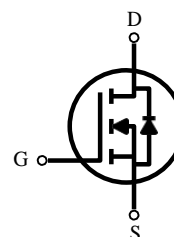
- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- Surface Mount package.
- ESD protected up to 2kv.

SOT-523



PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Max
20V	1	400@ $V_{GS} = 4.5V$
	0.7	500@ $V_{GS} = 2.5V$



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current-Continuous ^a @ $T_A = 25\text{ }^\circ\text{C}$ -Pulse ^b	I_D	1	A
	I_{DM}	4	A
Drain-Source Diode Forward Current ^a	I_S	0.8	A
Maximum Power Dissipation ^a	P_D	$T_A = 25\text{ }^\circ\text{C}$	0.35
		$T_A = 75\text{ }^\circ\text{C}$	0.2
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R_{thJA}	820	$^\circ\text{C/W}$
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No te

a. Surface Mounted on FR4 Board , $t \leq 10\text{sec}$.

b. Pulse width limited by maximum junction temperature.

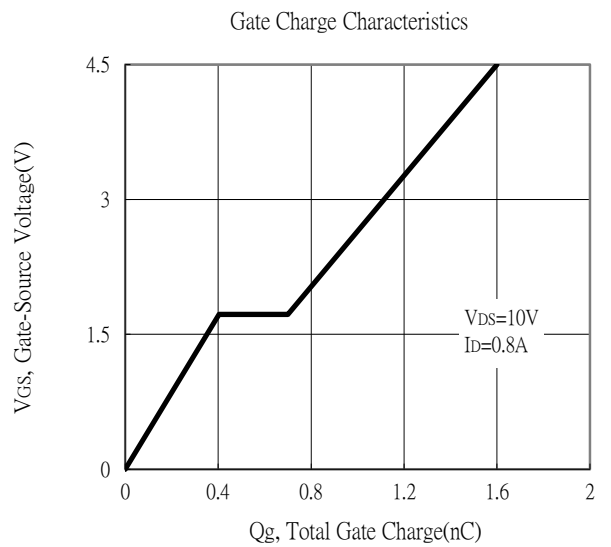
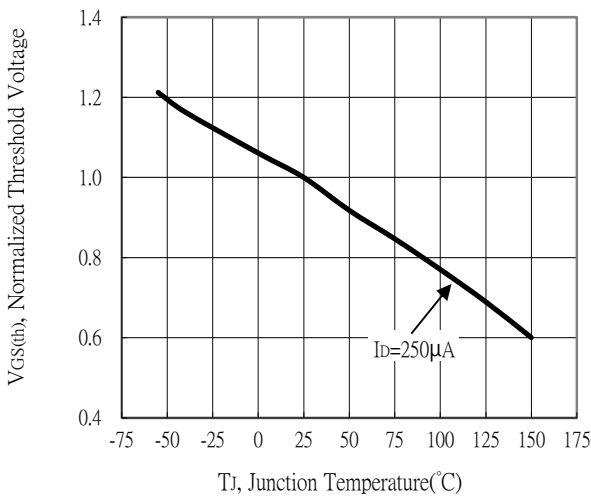
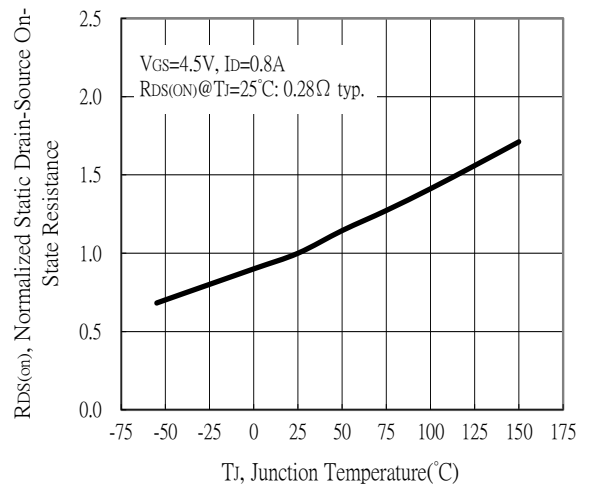
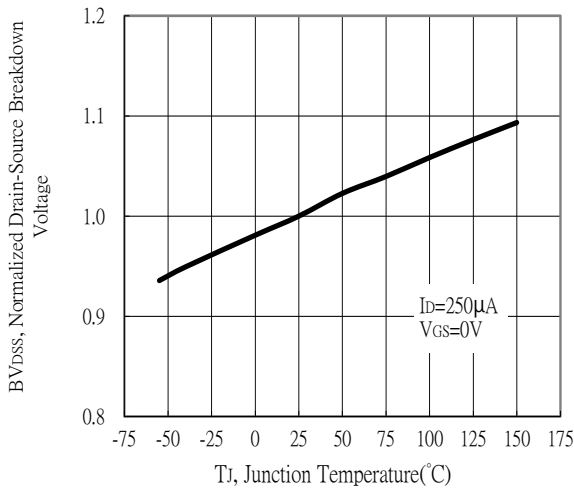
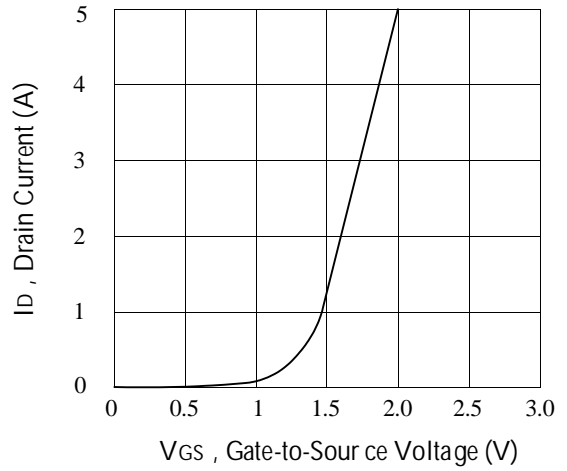
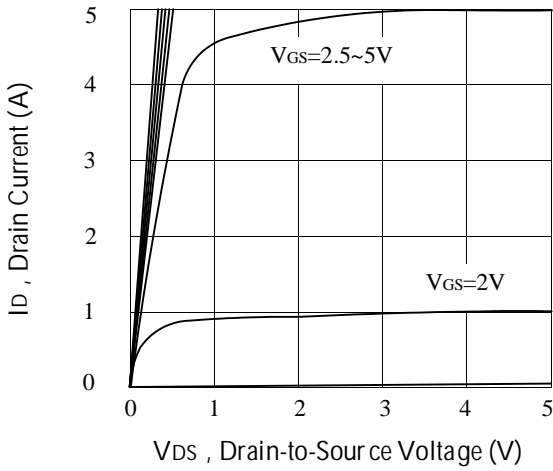
ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

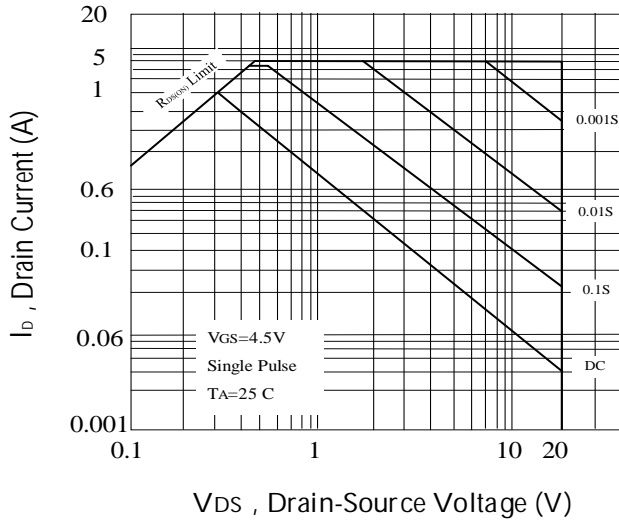
Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = 250uA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V , V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ± 8V , V _{DS} = 0V			± 10	uA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	0.5	0.7	1	V
Drain-Source On-State Resistance	R _{DSON}	V _{GS} = 4.5V , I _D = 0.8A		280	400	m-ohm
		V _{GS} = 2.5V , I _D = 0.5A		350	500	
Forward Transconductance	g _{fs}	V _{DS} = 5V , I _D = 0.8A		2.7		S
DRAIN-SOURCE DIODE CHARACTERISTICS^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = 0.8A			1.2	V
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz		38		pF
Output Capacitance	C _{OSS}			21		pF
Reverse Transfer Capacitance	C _{RSS}			18		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DS} = 10V, I _D = 0.8A		10.4		ns
Rise Time	t _r		V _{GEN} = 4.5V		3.9	
Turn-Off Delay Time	t _{D(OFF)}	R _L = 6 ohm		26		ns
Fall Time	t _f	R _{GEN} = 6 ohm		4.8		ns
Total Gate Charge	Q _g	V _{DS} = 10V I _D = 0.8A V _{GS} = 4.5V		1.6		nC
Gate-Source Charge	Q _{gs}			0.4		nC
Gate-Drain Charge	Q _{gd}			0.25		nC

No te

b. Pulse Test Pulse width ≤ 300us , Duty Cycle ≤ 2% .

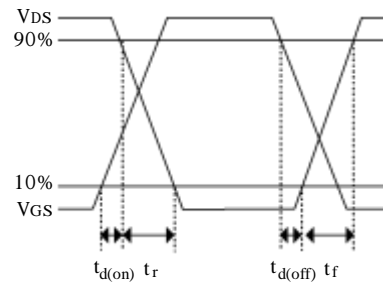
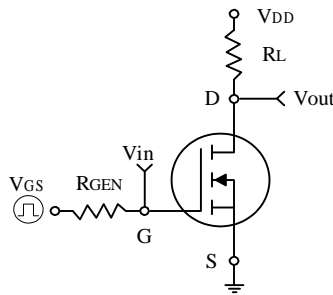
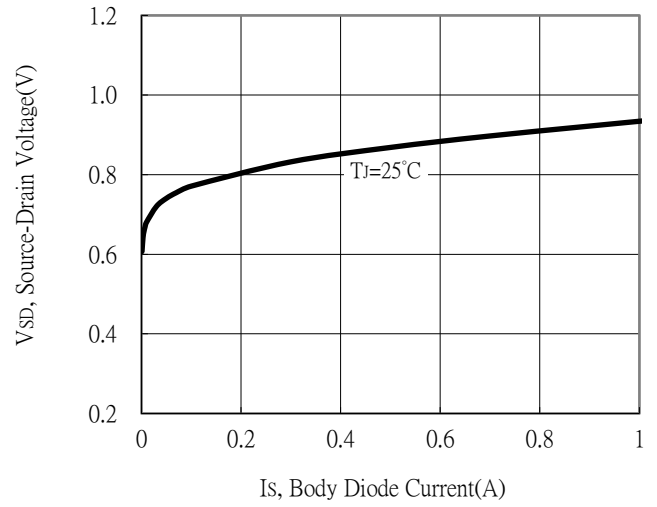
c. Guaranteed by design , not subject to production testing .



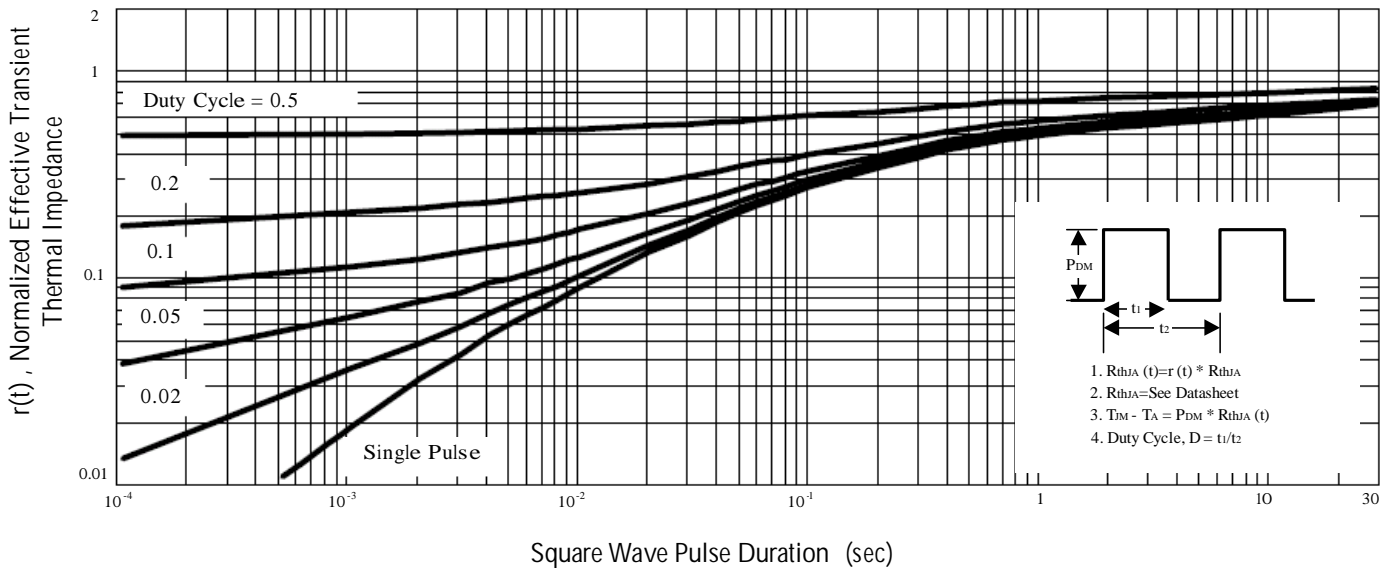


V_{DS} , Drain-Source Voltage (V)

Maximum Safe Operating Area



Switching Test Circuit and Switching Waveforms



Normalized Thermal Transient Impedance Curve