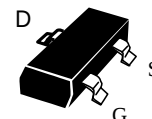


N-Channel High Density Trench MOSFET

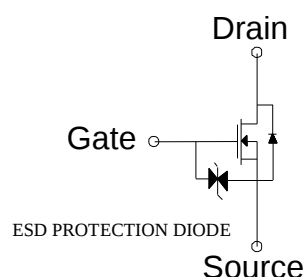
FEATURES

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

SOT-23



PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Max
30V	0.8	280@ $V_{GS} = 4.5V$
	0.5	550@ $V_{GS} = 1.8V$



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 10	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	0.35	W
		0.21	
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}	357	$^{\circ}\text{C/W}$
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Note

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

b. Pulse width limited by maximum junction temperature.

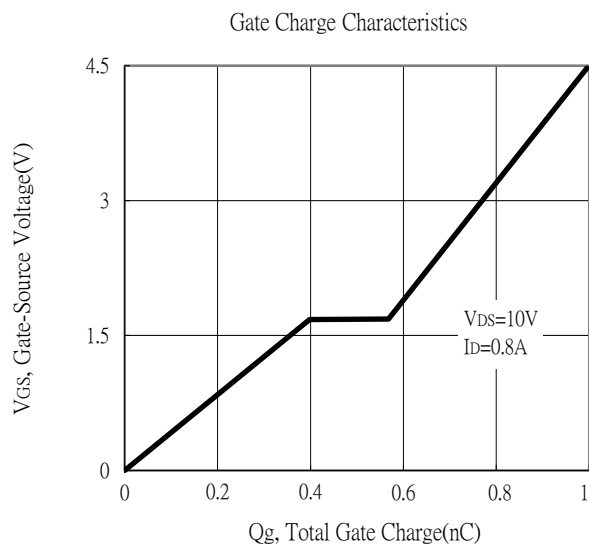
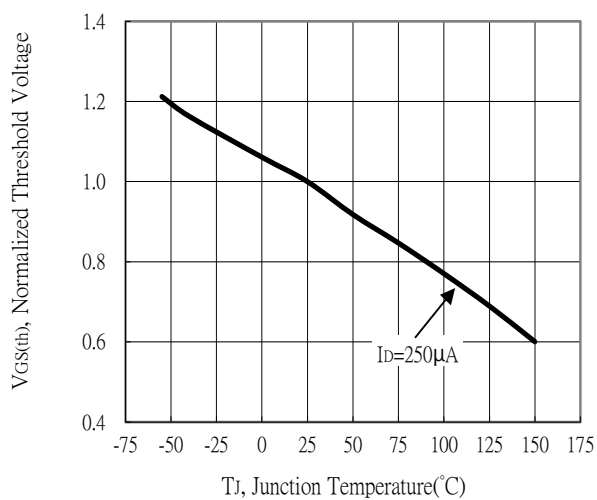
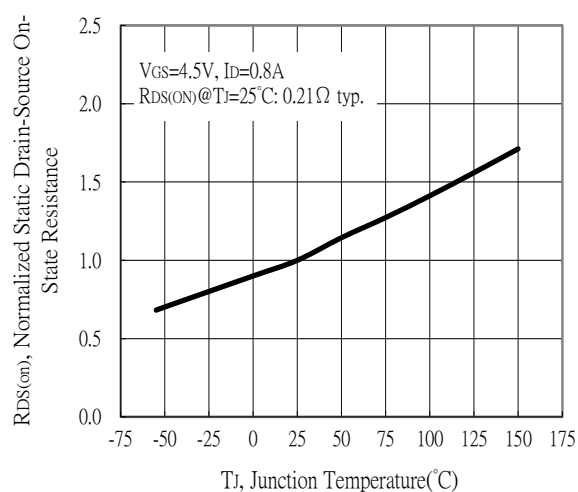
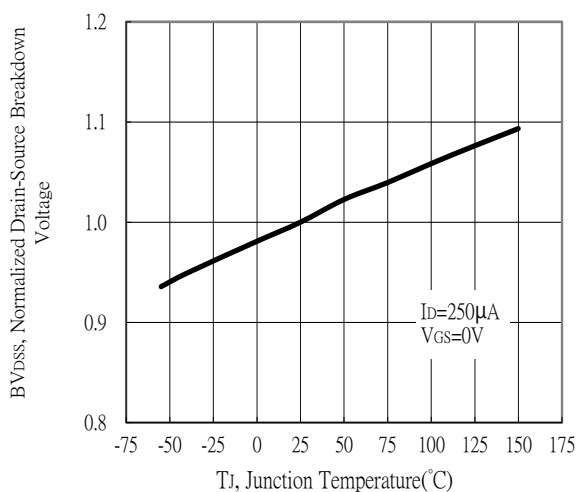
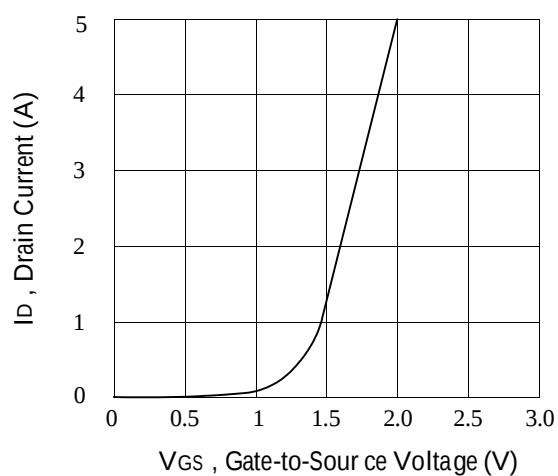
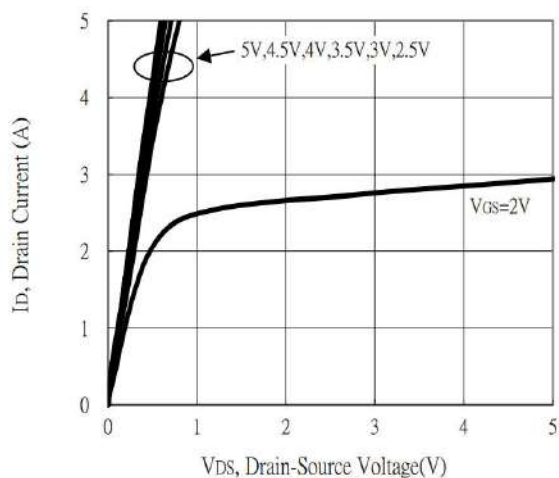
ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

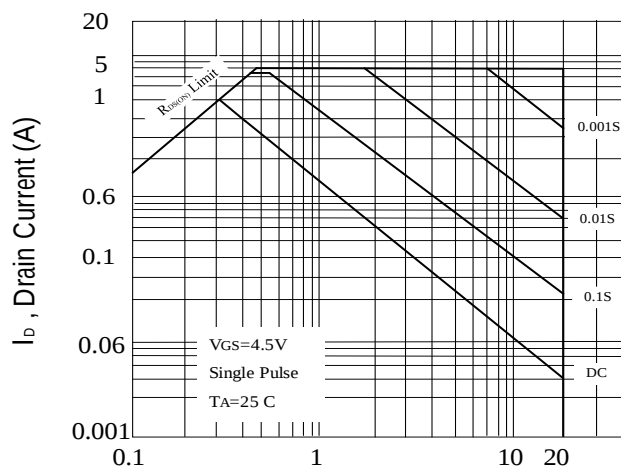
Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = 250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V , V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±10V , V _{DS} =0V			±10	uA
ON CHARACTERISTICS ^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 _{DS(on)}	V _{GS} = 4.5V , I _D =0.8A		210	280	m-ohm
		V _{GS} = 1.8V , I _D = 0.5A		360	550	
Forward Transconductance	g _{fs}	V _{DS} = 5V , I _D = 0.8A		3.7		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		60		pF
Output Capacitance	C _{OSS}			22		pF
Reverse Transfer Capacitance	C _{RSS}			12		pF
SWITCHING CHARACTERISTICS ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DS} = 10V, I _D = 0.8A		2		ns
Rise Time	t _r		V _{GEN} = 4.5V		19	
Turn-Off Delay Time	t _{D(OFF)}	R _L = 6 ohm		10		ns
Fall Time	t _f	R _{GEN} = 6 ohm		23		ns
Total Gate Charge	Q _g	V _{DS} = 10V		1		nC
Gate-Source Charge	Q _{gs}	I _D = 0.8A		0.28		nC
Gate-Drain Charge	Q _{gd}	V _{GS} = 4.5V		0.21		nC

Note

b. Pulse Test Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

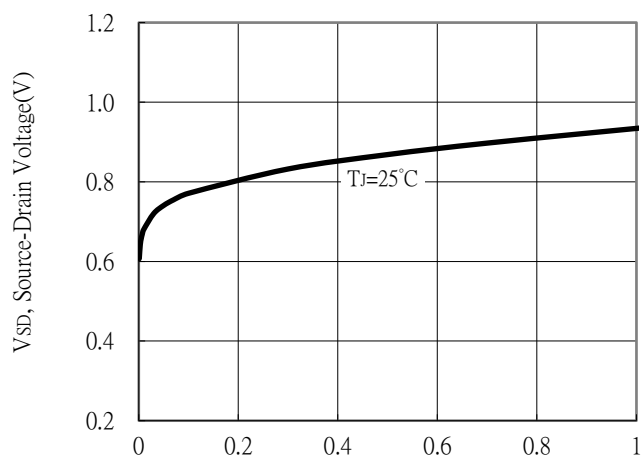
c. Guaranteed by design, not subject to production testing.



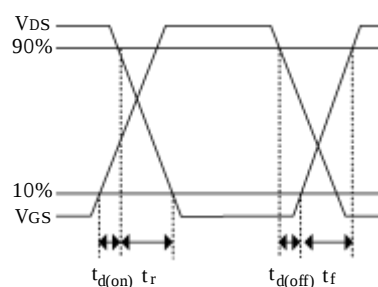
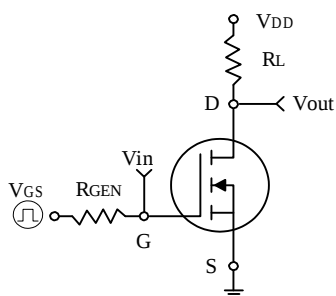


V_{DS} , Drain-Source Voltage (V)

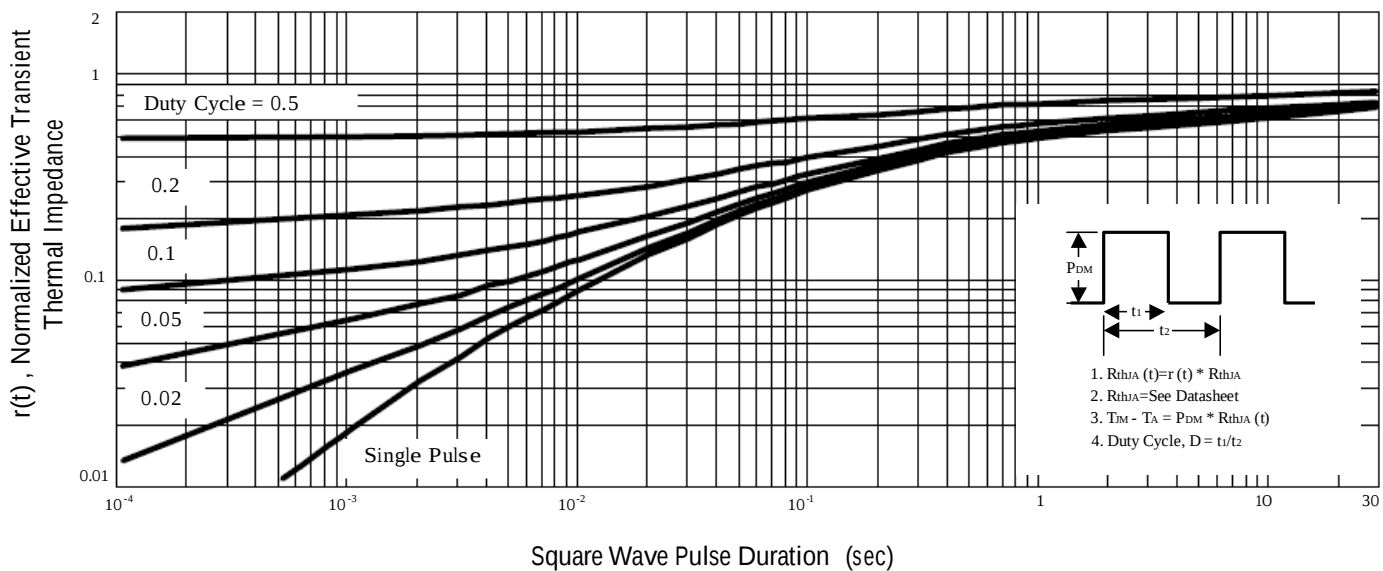
Maximum Safe Operating Area



I_S , Body Diode Current(A)



Switching Test Circuit and Switching Waveforms



Normalized Thermal Transient Impedance Curve