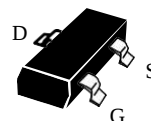


N-Channel High Density Trench MOSFET

Features:

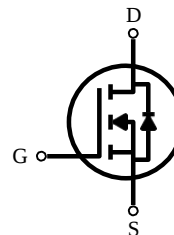
- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- Surface Mount package.

SOT-23



PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m Ω) Max
30V	4.6A	65 @ $V_{GS} = 10V$
	3.8A	78 @ $V_{GS} = 5V$
	2.8A	85 @ $V_{GS} = 4.5V$



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ^a @ $T_A = 25^\circ\text{C}$ -Pulse ^b	I_D	4.6	A
	I_{DM}	20	A
Drain-Source Diode Forward Current ^a	I_S	2.5	A
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$ 1.25	W
		$T_A = 75^\circ\text{C}$ 0.75	
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}	100	$^\circ\text{C/W}$
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Note :

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

b. Pulse width limited by maximum junction temperature.

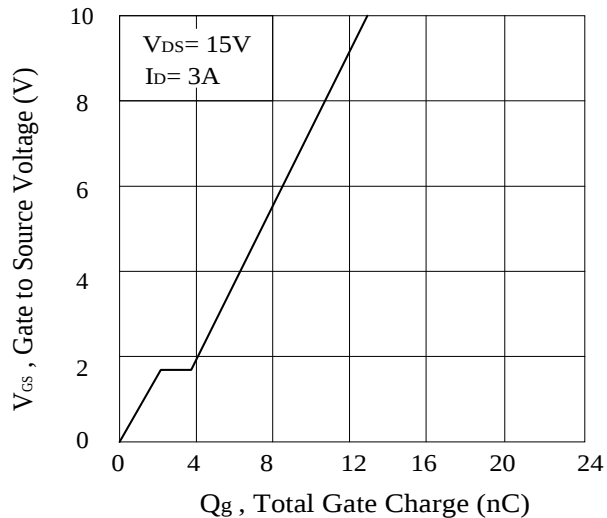
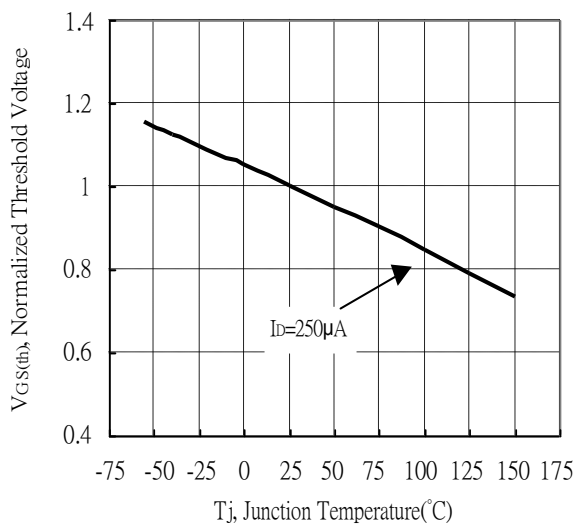
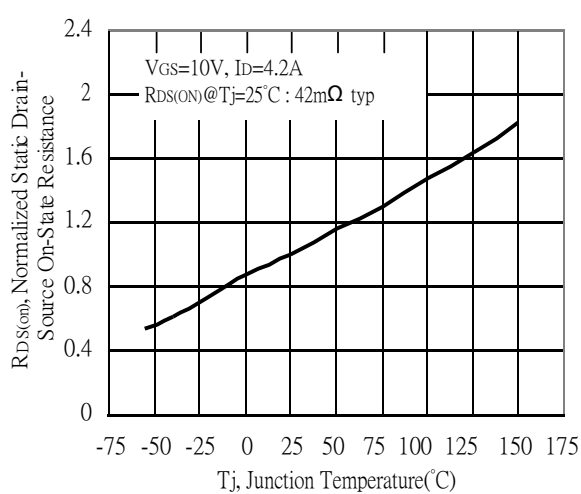
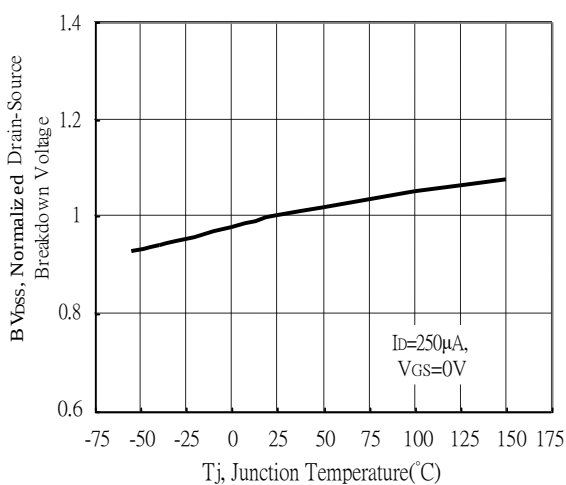
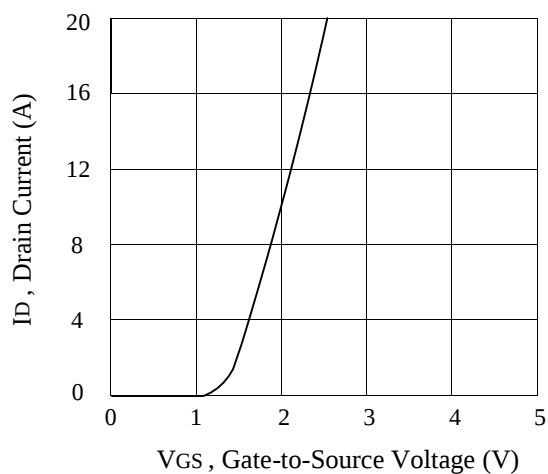
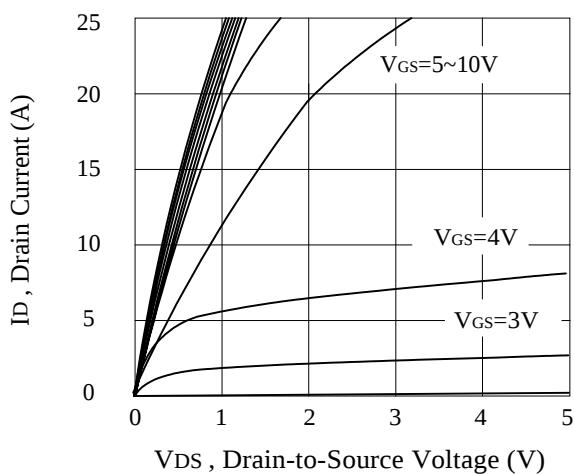
ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

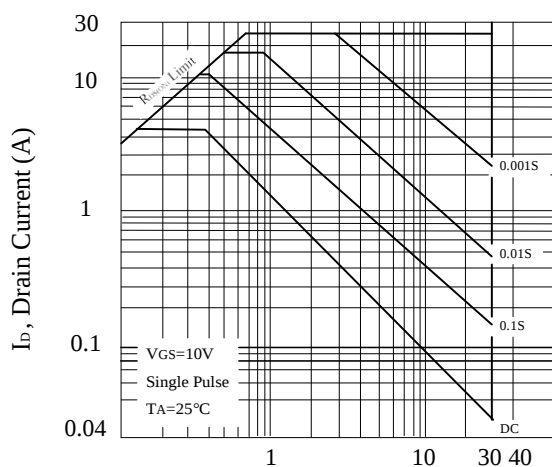
Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = 250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V , V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±12V , V _{DS} = 0V			±100	nA
ON CHARACTERISTICS ^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.55	2	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V , I _D = 4.6A		42	65	mΩ
		V _{GS} = 5V , I _D = 3.8A		60	78	
		V _{GS} = 4.5V , I _D = 2.8A		68	85	
Forward Transconductance	g _{fs}	V _{DS} = 5V , I _D = 3A		10		S
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = 1.0A			1.2	V
DYNAMIC CHARACTERISTICS ^c						
Input Capacitance	C _{ISS}	V _{DS} = 15V , V _{GS} = 0V f = 1.0MHz		548		pF
Output Capacitance	C _{OSS}			58		pF
Reverse Transfer Capacitance	C _{RSS}			37		pF
SWITCHING CHARACTERISTICS ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 15V , I _D = 1A V _{GEN} = 10V R _L = 15 Ω R _{GEN} = 6 Ω		6.5		ns
Rise Time	t _r			2		ns
Turn-Off Delay Time	t _{D(OFF)}			28.6		ns
Fall Time	t _f			2.6		ns
Total Gate Charge	Q _g	V _{DS} = 15V I _D = 3A V _{GS} = 10V		13.6		nC
Gate-Source Charge	Q _{gs}			2.4		nC
Gate-Drain Charge	Q _{gd}			1.3		nC

Note :

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

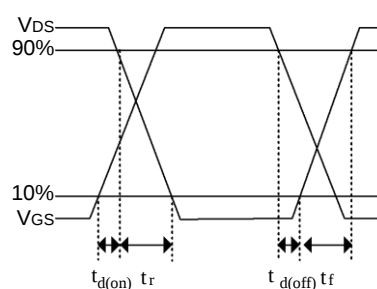
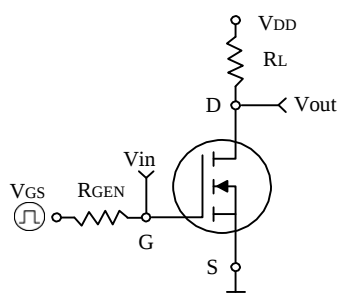
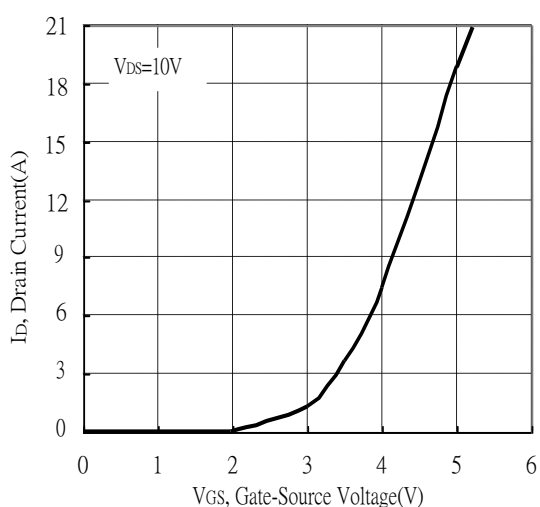
c. Guaranteed by design , not subject to production testing.





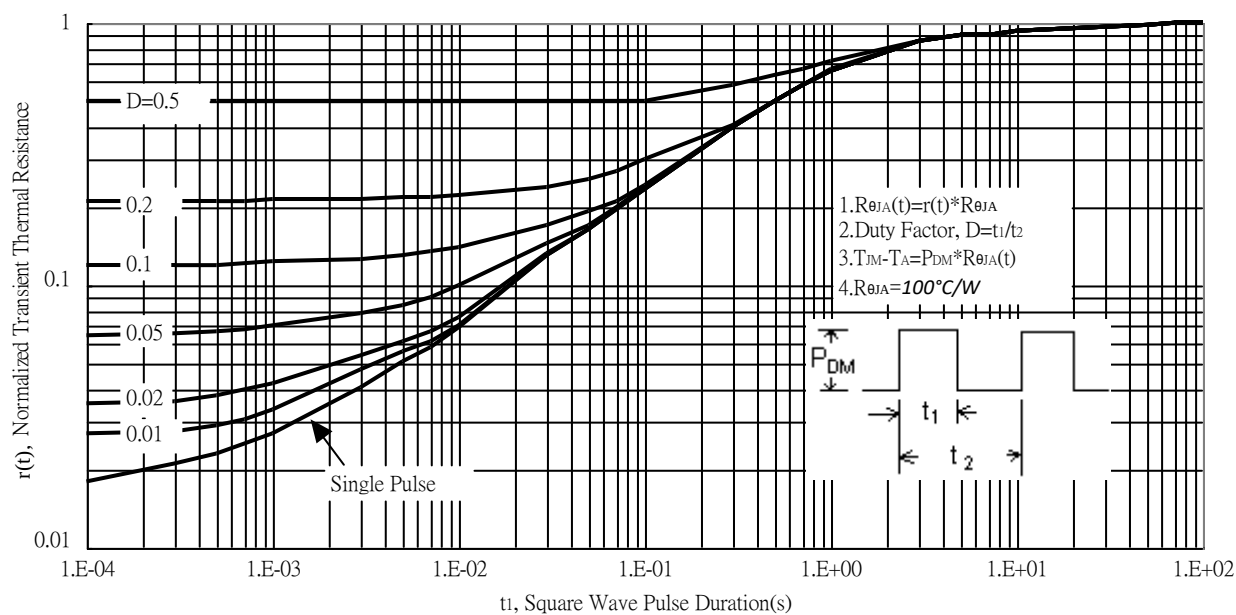
V_{DS} , Drain-Source Voltage (V)

Maximum SafeOperating
Area

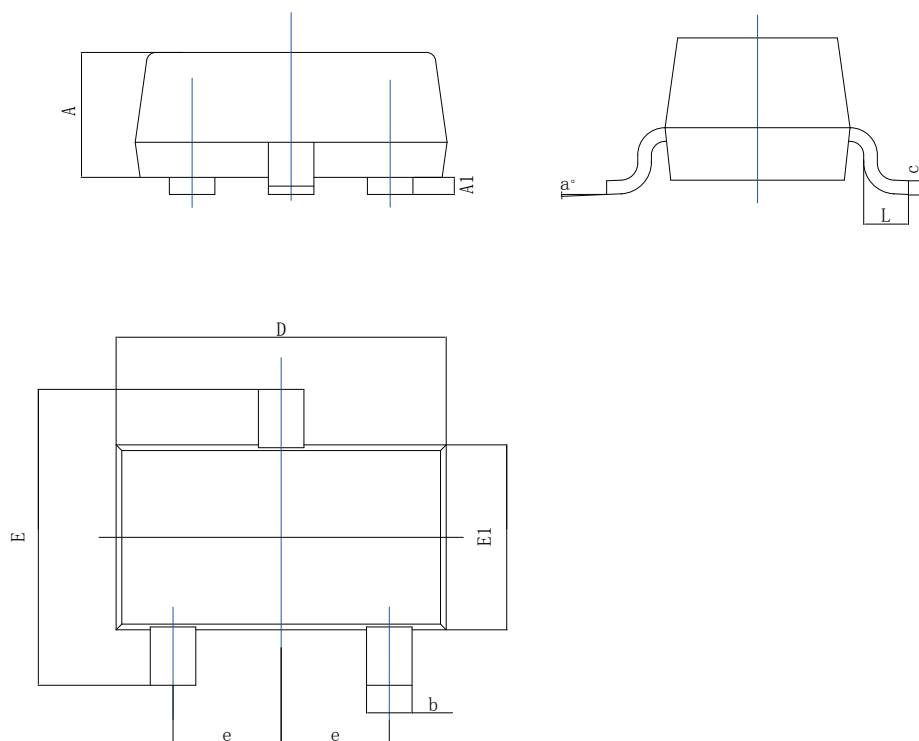


Switching Test Circuit and Switching
Waveforms

Transient Thermal Response Curves



SOT-23 Dimension



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	--	--	1.35
A1	0.04	0.07	0.15
b	0.30	0.40	0.50
c	0.08	--	0.21
D	2.72	2.92	3.12
E	2.10	2.33	2.64
E1	1.10	1.30	1.50
e	0.95BSC		
L	0.20	--	0.60
a °	0 °	--	8 °