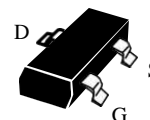


P-Channel High Density Trench MOSFET

Features:

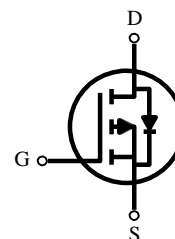
- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- Surface Mount package.

SOT-23



PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Max
-20V	-4.8 A	45 @ $V_{GS} = 4.5V$
	-3.5 A	55 @ $V_{GS} = 2.5V$



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	-5.6	A
	I_{DM}	-20	A
Maximum Power Dissipation ^a	P_D	1.25	W
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.

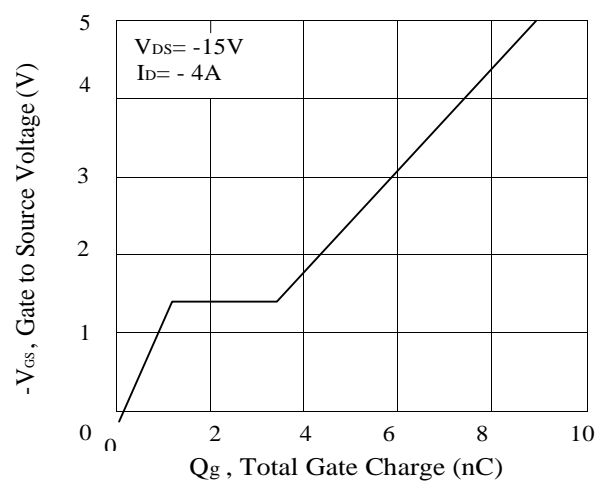
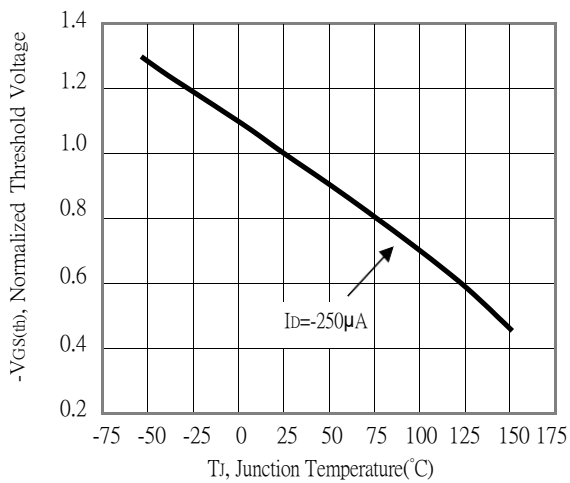
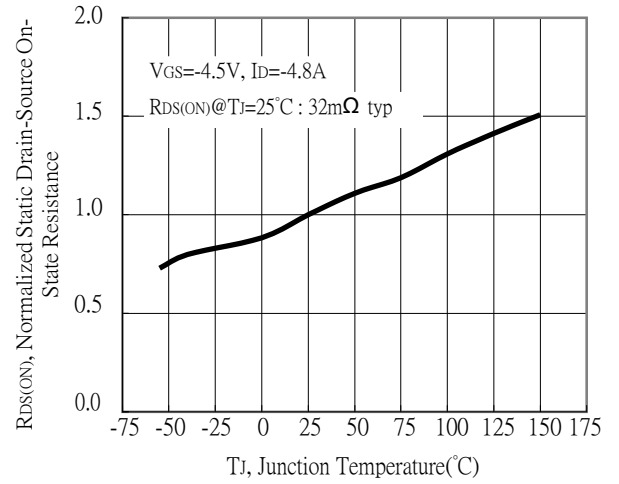
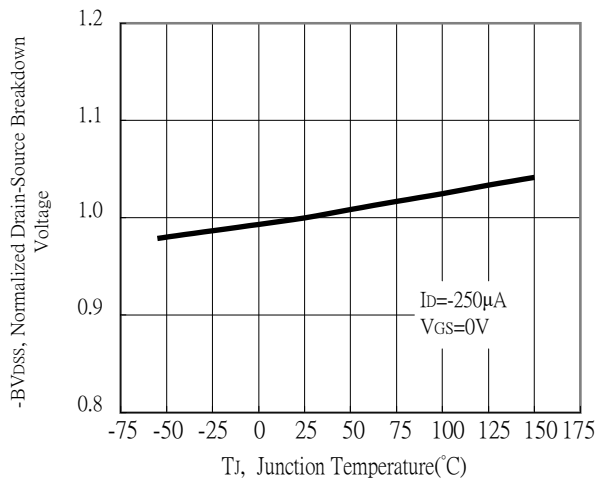
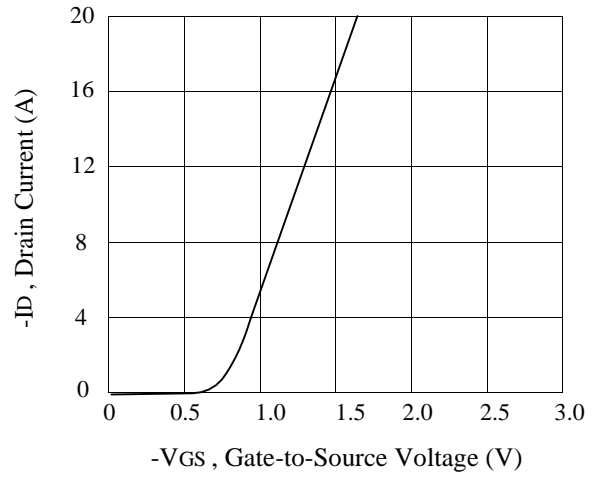
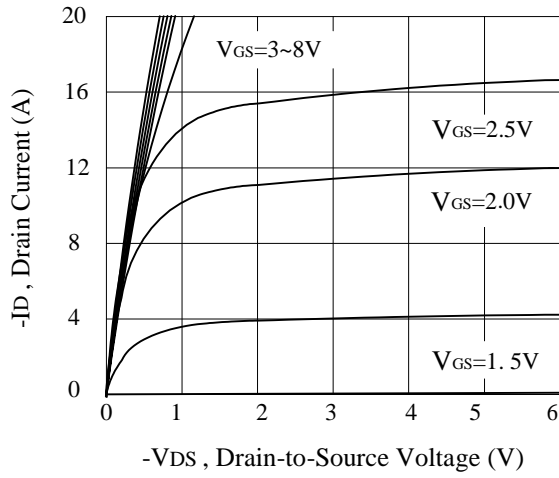
ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = -250uA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V , V _{GS} = 0V			-1	uA
Gate-Body Leakage Current, Forward	I _{GSSF}	V _{GS} = 12V , V _{DS} = 0V			100	nA
Gate Body Leakage Current, Reverse	I _{GSSR}	V _{GS} = -12V, V _{DS} = 0V			-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-0.4	-0.6	-1	V
Static Drain-Source On-Resistance	R _{DSON}	V _{GS} = -4.5V , I _D = -4.8A		32	45	mΩ
		V _{GS} = -2.5V , I _D = -3.5A		44	55	mΩ
DYNAMIC CHARACTERISTICS						
Forward Transconductance	g _{FS}	V _{DS} = -10V, I _D = -4A		5		S
Input Capacitance	C _{ISS}	V _{DS} = -15V , V _{GS} = 0V f = 1.0MHz		900		pF
Output Capacitance	C _{OSS}			155		pF
Reverse Transfer Capacitance	C _{RSS}			205		pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -15V , I _D = -4A		9	20	ns
Rise Time	t _r			4	10	ns
Turn-Off Delay Time	t _{D(OFF)}	V _{GEN} = -10V		42	85	ns
Fall Time	t _f	R _{GEN} = 6 ohm		5	10	ns
Total Gate Charge	Q _g	V _{DS} = -15V I _D = -4A V _{GS} = -4.5V		8.4	11	nC
Gate-Source Charge	Q _{gs}			2.4		nC
Gate-Drain Charge	Q _{gd}			1.5		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current ^b	I _S				-4	A
Drain-Source Diode Forward Voltage ^c	V _{SD}	V _{GS} = 0V, I _S = -1A			-1	V

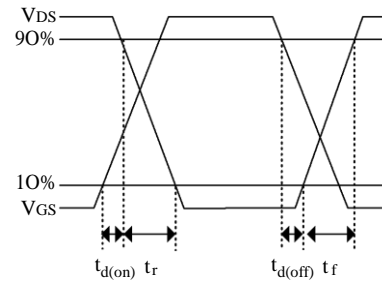
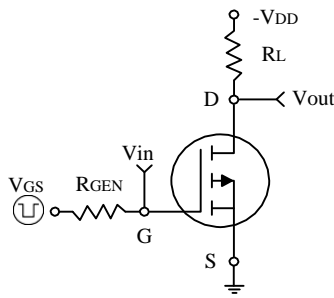
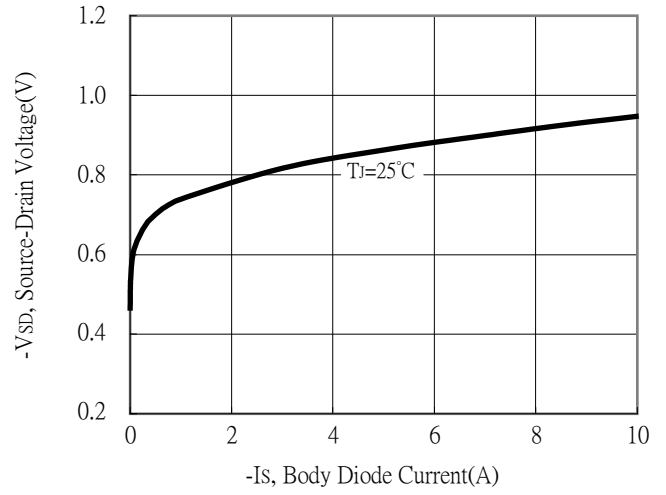
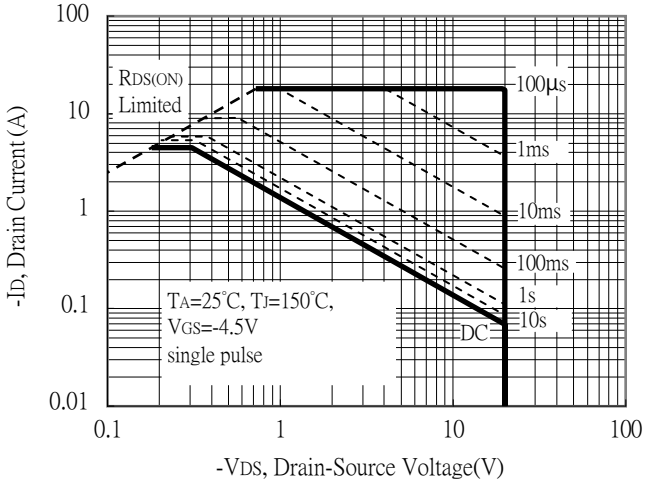
Note

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

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



Maximum Safe Operating Area



Switching Test Circuit and Switching Waveforms

Transient Thermal Response Curves

