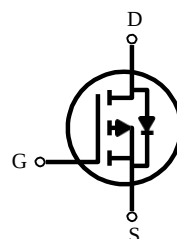
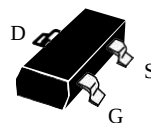


P-Channel High Density TrenchMOSFET

Features:

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

SOT-23



PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Max
-20V	-4.6 A	45 @ $V_{GS} = 4.5V$
	-3.2 A	55 @ $V_{GS} = 2.5V$

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ 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 @ $T_A = 25^\circ C$ -Pulse ^b	I_D	-4.6	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	$^\circ C$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R_{thJA}	100	$^\circ C/W$
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Note

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

b. Pulse width limited by maximum junction temperature.

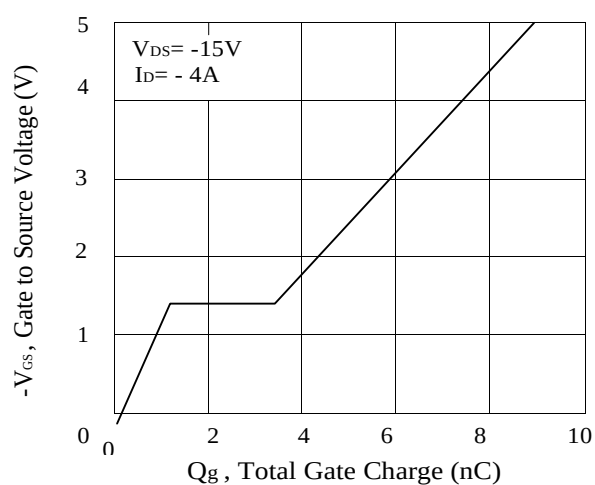
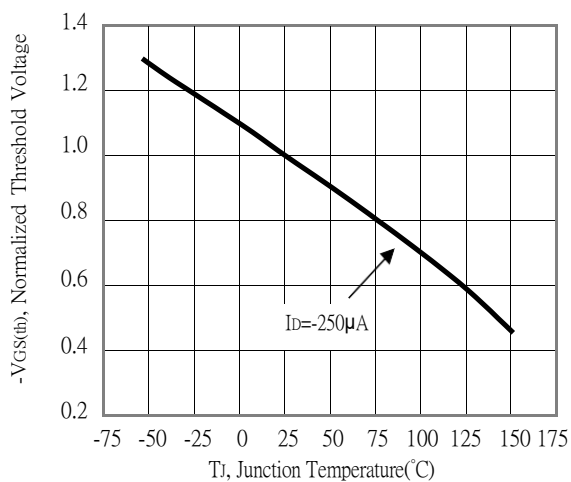
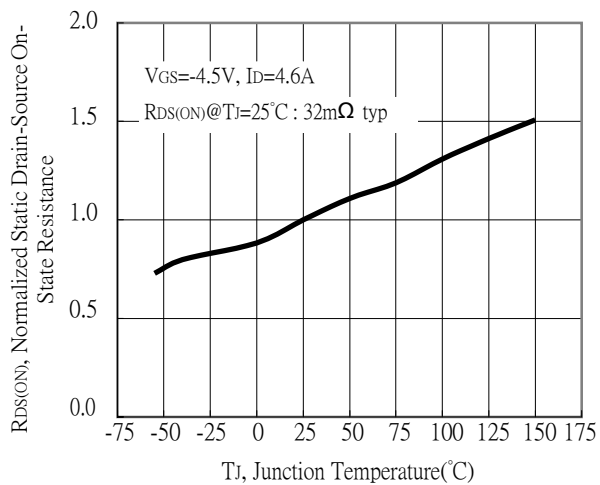
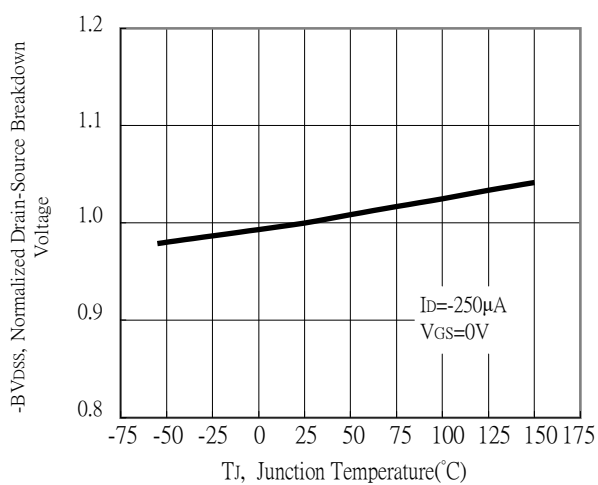
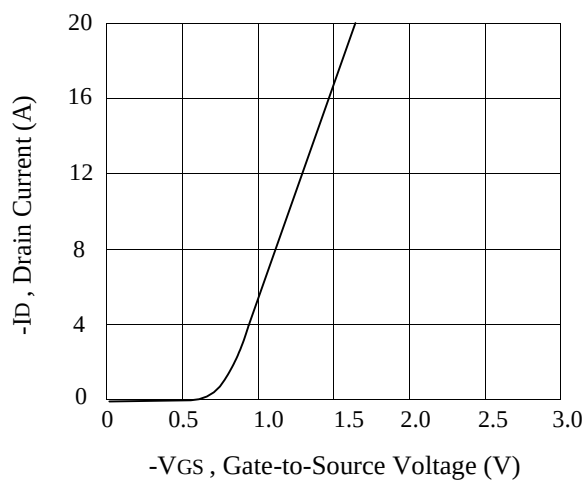
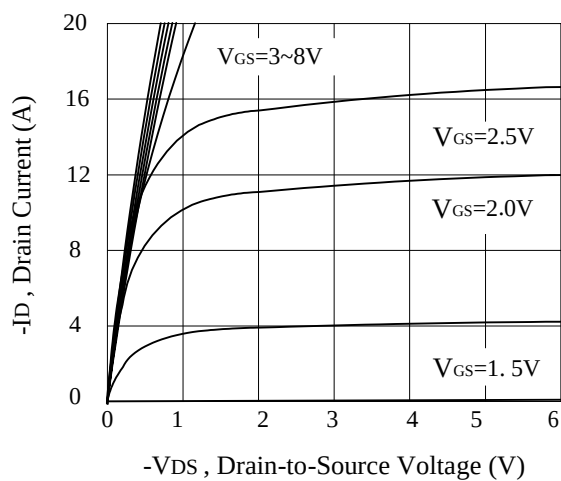
ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

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} = -30V , V _{GS} = 0V			-1	uA
Gate-Body Leakage Current, Forward	I _{GSSF}	V _{GS} = 8V , V _{DS} = 0V			10	uA
Gate Body Leakage Current, Reverse	I _{GSSR}	V _{GS} = -8V, V _{DS} = 0V			-10	uA
ON CHARACTERISTICS ^c						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-0.4	-0.55	-0.9	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V , I _D = -4.6 A		35	45	m _Ω
		V _{GS} = -2.5V , I _D = -3.2A		41	55	m _Ω
		V _{GS} = -1.8V , I _D = -2.4A		50	65	m _Ω
DYNAMIC CHARACTERISTICS ^c						
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 ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -15V , I _D = 4A V _{GEN} = -10V R _{GEN} = 6 ohm		9	20	ns
Rise Time	t _r			4	10	ns
Turn-Off Delay Time	t _{D(OFF)}			42	85	ns
Fall Time	t _f			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

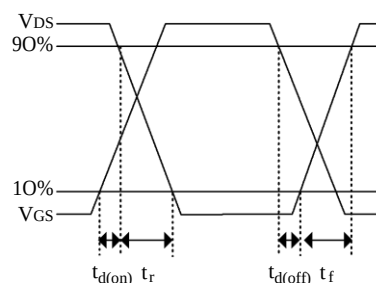
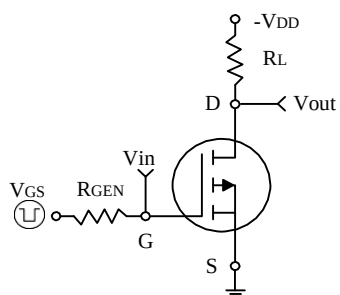
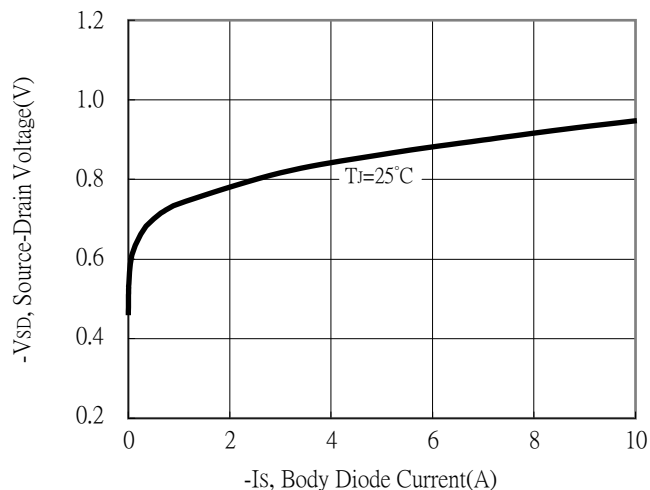
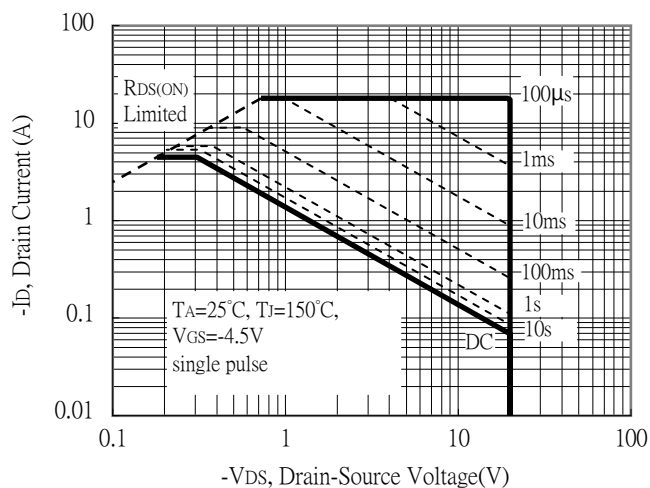
Note

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

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

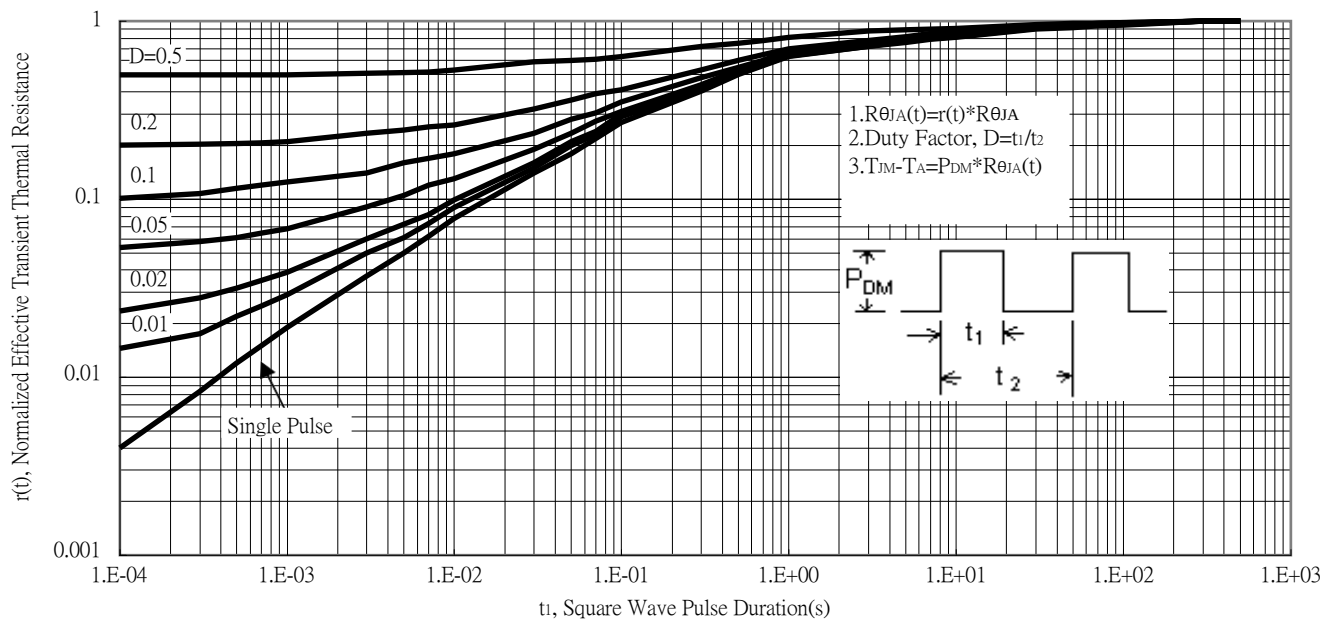


Maximum Safe Operating Area

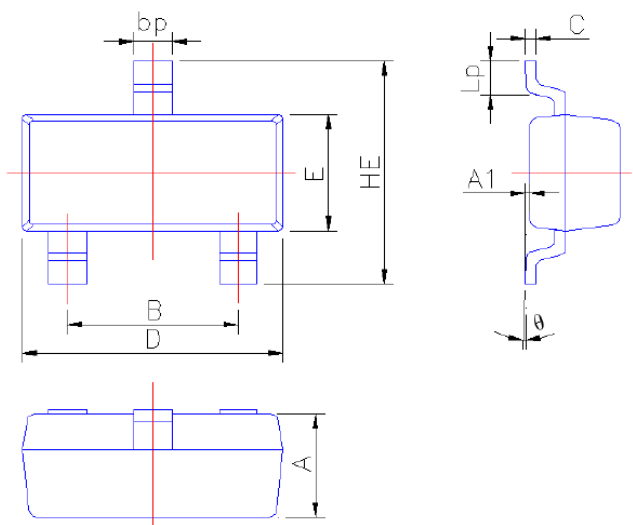


Switching Test Circuit and Switching Waveforms

Transient Thermal Response Curves

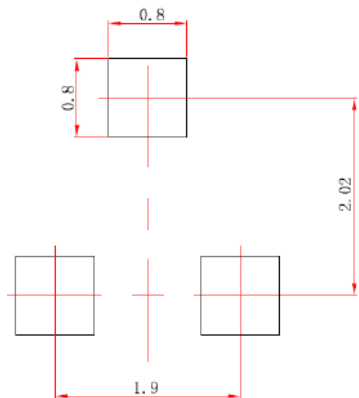


SOT-23 Dimension



Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.10
A1	0.013	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.150
D	2.80	3.00
E	1.20	1.40
HE	2.20	2.80
Lp	0.20	0.50
θ	0°	5°

Recommended Soldering Footprint



Unit : mm

Marking:

