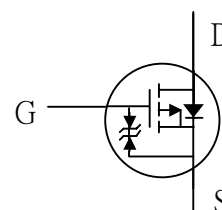
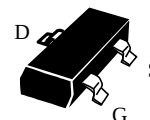


P-Channel High Density Trench MOSFET

SOT-523

FEATURES

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



PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Typ
-20V	-0.8	600 @ $V_{GS} = 4.5V$
	-0.6	800 @ $V_{GS} = 2.5V$

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	-0.8	A
	I_{DM}	-3	A
Drain-Source Diode Forward Current ^a	I_S	-1	A
Maximum Power Dissipation ^a	P_D	0.28	W
		0.168	
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}	150	$^{\circ}\text{C/W}$
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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 (TA = 25 °C unless otherwise noted)

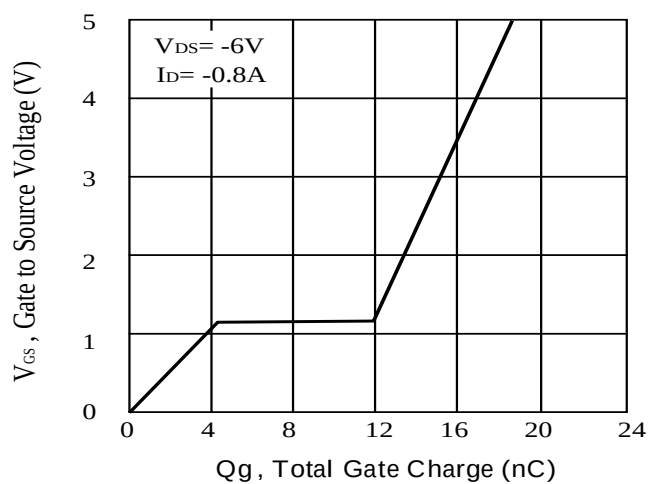
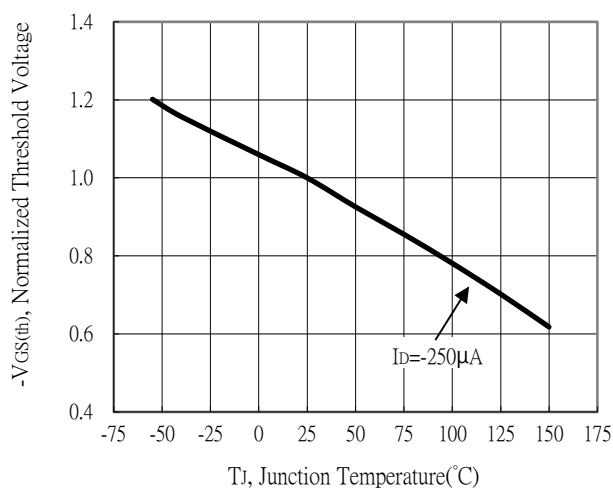
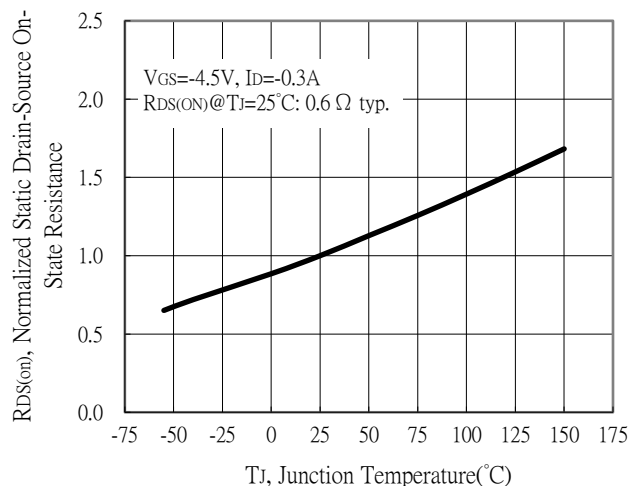
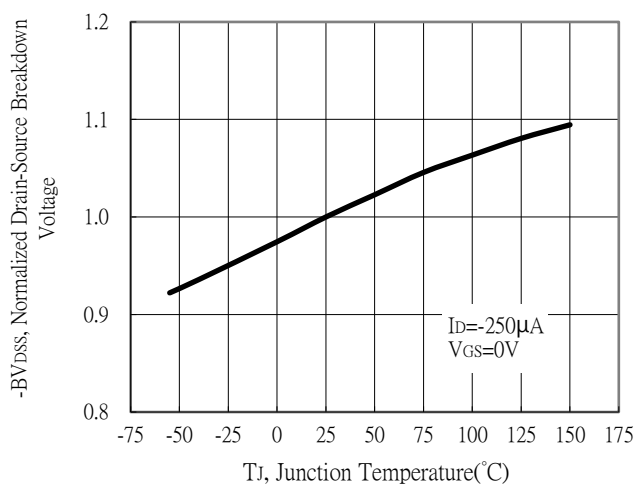
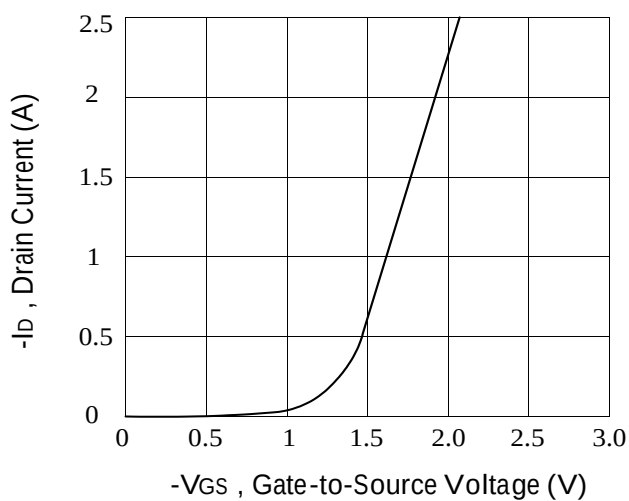
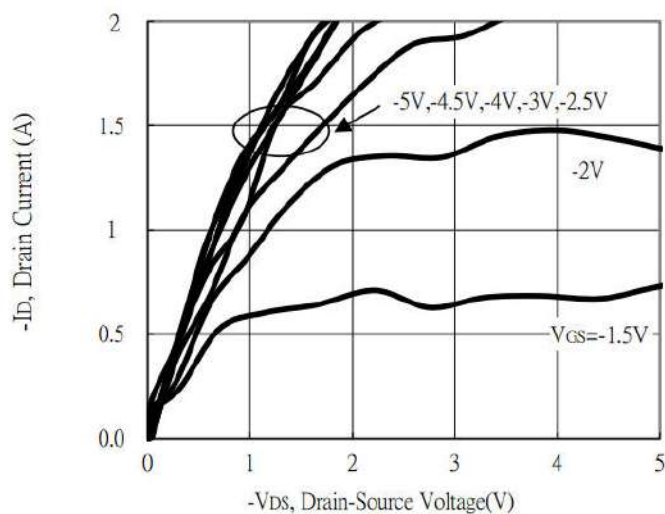
Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = 250uA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±8V , V _{DS} = 0V			±10	uA
ON CHARACTERISTICS ^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 _{DS(on)}	V _{GS} = -4.5V I _D = -0.8A		600	800	m-ohm
		V _{GS} = -2.5V I _D = -0.6A		800	1000	
Forward Transconductance	g _{fs}	V _{DS} = -5V I _D = -0.5A		10.7		S
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = -1.7A		-0.7	-1.2	V
DYNAMIC CHARACTERISTICS ^c						
Input Capacitance	C _{ISS}	V _{DS} = -6V, V _{GS} = 0V f = 1.0MHz		50.7		pF
Output Capacitance	C _{OSS}			12.8		pF
Reverse Transfer Capacitance	C _{RSS}			7.1		pF
SWITCHING CHARACTERISTICS ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -6V, I _D = -0.8A V _{GEN} = 4.5V R _L = 6 ohm R _{GEN} = 6 ohm		6	9	ns
Rise Time	t _r			12	38	ns
Turn-Off Delay Time	t _{D(OFF)}			27	36	ns
Fall Time	t _f			6.8		ns
Total Gate Charge	Q _g	V _{DS} = -6V		18		nC
Gate-Source Charge	Q _{gs}	I _D = -0.8A		4.2		nC
Gate-Drain Charge	Q _{gd}	V _{GS} = -4.5V		2.8		nC

Note

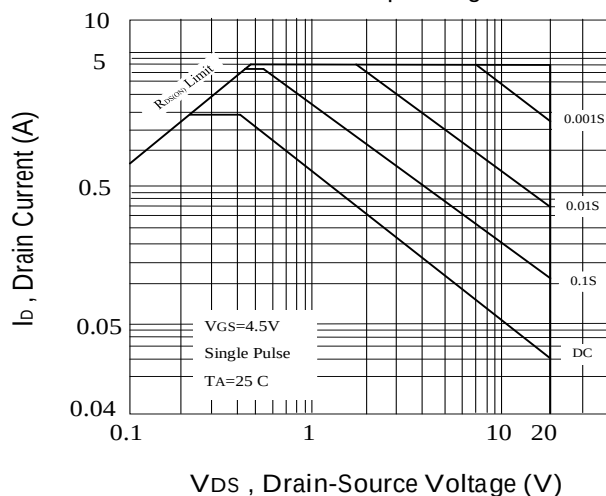
b. Pulse Test Pulse width ≤ 300us , Duty Cycle ≤ 2% .

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

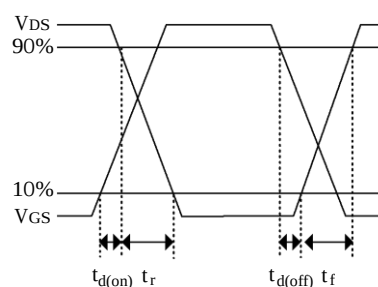
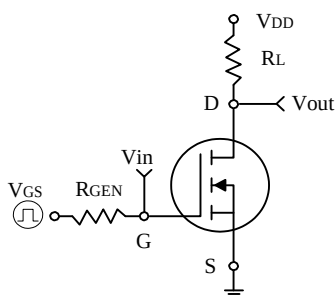
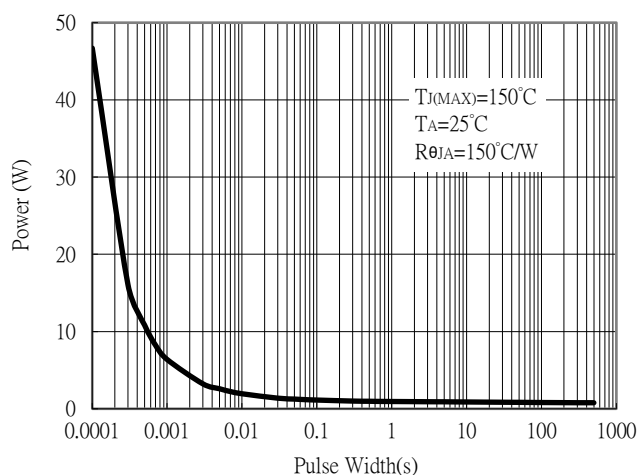
Typical Output Characteristics



Maximum Safe Operating Area



Single Pulse Power Rating, Junction to Ambient



Switching Test Circuit and Switching Waveforms

Transient Thermal Response Curves

