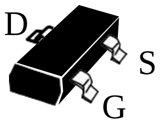
P-Channel High Density Trench MOSFET

Features:

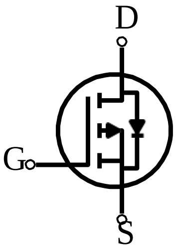
- ●Super high dense cell trench design for low RDS(on).
- ●Rugged and reliable.
- ●Surface Mount package.

SOT-23



PRODUCT SUMMARY

VDSS	ID	RDS(on) (m-ohm) Max
-60V	-2A	210 @ VGS= 10V
	-1.5A	330@ VGS= 4.5V



ABSOLUTE MAXIMUM RATINGS (T_A = 25 ℃ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		VDS	-60	V
Gate-Source Voltage		VGS	± 20	V
Drain Current-Continuous[a]@ TA= 25 ℃		ID	-1.5	A
-Pulse[b]		IDM	-6	A
Drain-Source Diode Forward Current [a]		IS	-0.75	A
Maximum Power Dissipation [a]	TA=25℃	PD	1.25	W
	TA=75℃		0.75	
Operating Junction and Storage Temperature Range		TJ,TSTG	- 55 to 150	℃

THERMAL CHARACTERISTICS

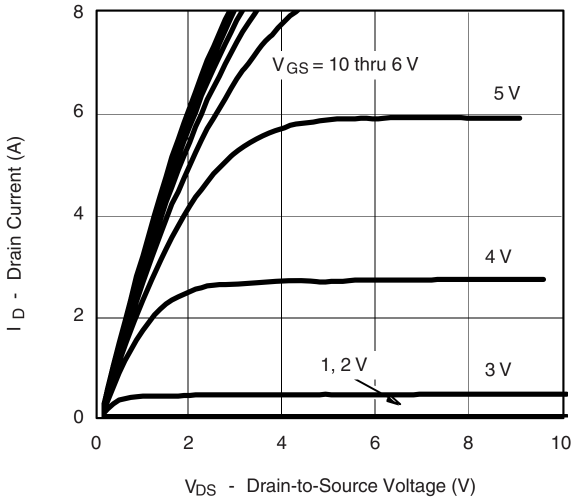
Thermal Resistance,Junction-to-Ambient[a]	RthJA	100	℃/W

Note
a. Surface Mounted on FR4 Board , t ≤ 10sec.
b. Pulse width limited by maximum junction temperature.

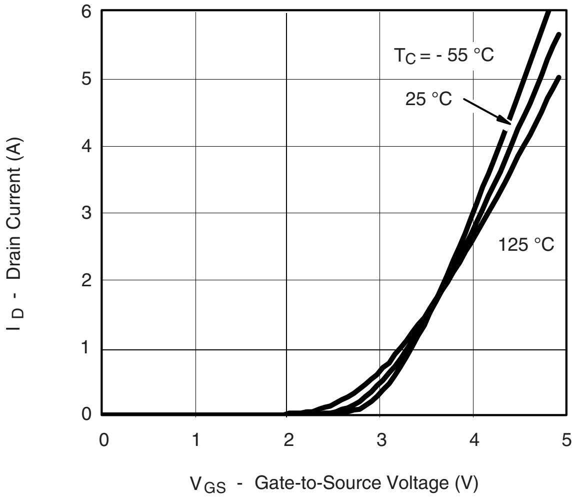
ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ[c]	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V , I_D = -250uA	-60			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			-100	nA
ON CHARACTERISTICS[b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = -250uA	-1	-1.6	-3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -10V ,I_D = -1.5A		150	210	m-ohm
		V_{GS} = -4.5V , I_D = -1.2A		260	330	m-ohm
DRAIN-SOURCE DIODE CHARACTERISTICS[b]						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V , I_S = -0.75A			-1.2	V
DYNAMIC CHARACTERISTICS[c]						
Input Capacitance	C_{ISS}	V_{DS} = -60V, V_{GS} = 0V f = 1.0MHz		785		pF
Output Capacitance	C_{OSS}			285		pF
Reverse Transfer Capacitance	C_{RSS}			112		pF
SWITCHING CHARACTERISTICS[c]						
Turn-On Delay Time	$t_{D(ON)}$	V_{DD} = -6V , I_D = -1A V_{GEN} = -4.5V R_L = 6 ohm R_{GEN} = 6 ohm		10.5		ns
Rise Time	t_r			15.6		ns
Turn-Off Delay Time	$t_{D(OFF)}$			18.7		ns
Fall Time	t_f			8.2		ns
Total Gate Charge	Q_g	V_{DS} = -6V I_D = -2.8A V_{GS} = -4.5V		8.2		nC
Gate-Source Charge	Q_{gs}			5.8		nC
Gate-Drain Charge	Q_{gd}			3.7		nC

Note
b. Pulse Test Pulse width ≤ 300us , Duty Cycle ≤ 2% .
c. Guaranteed by design , not subject to production testing .

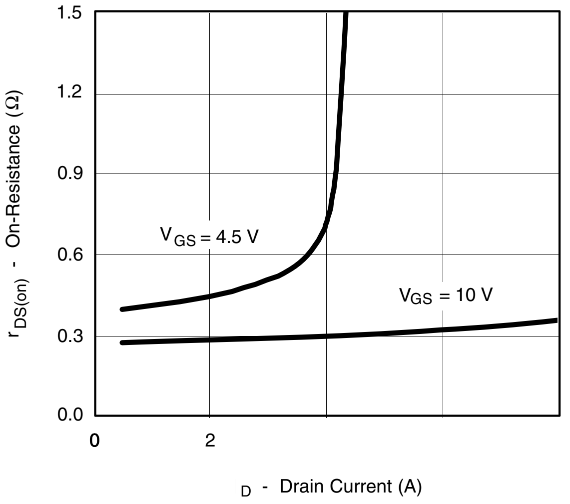


Output Characteristics

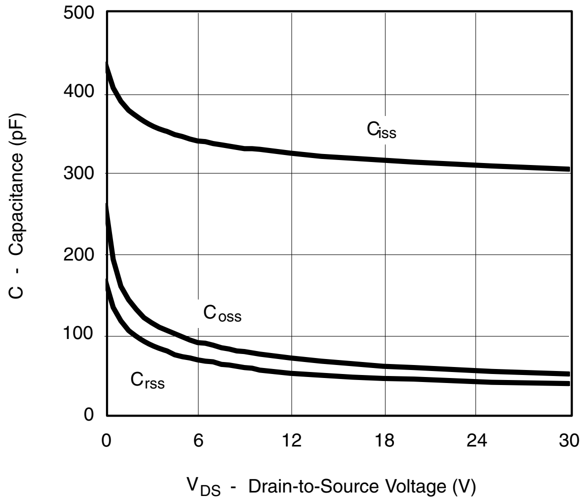


Transfer Characteristics

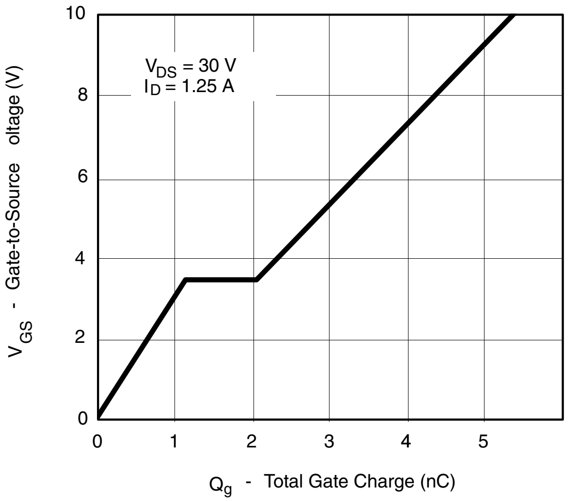
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



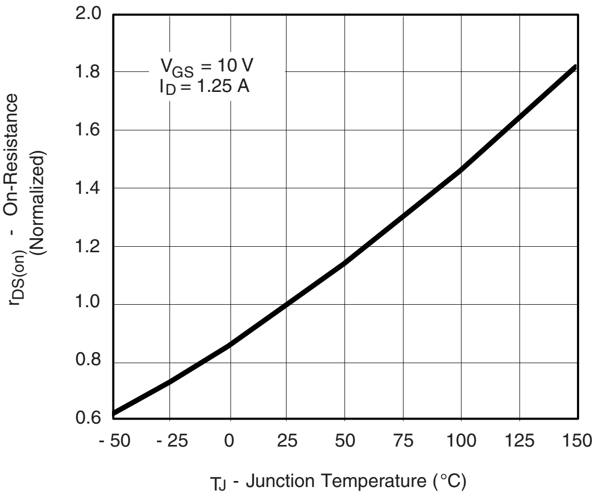
On-Resistance vs. Drain Current



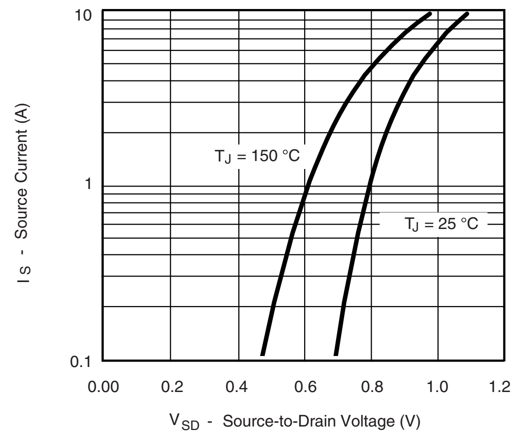
Capacitance



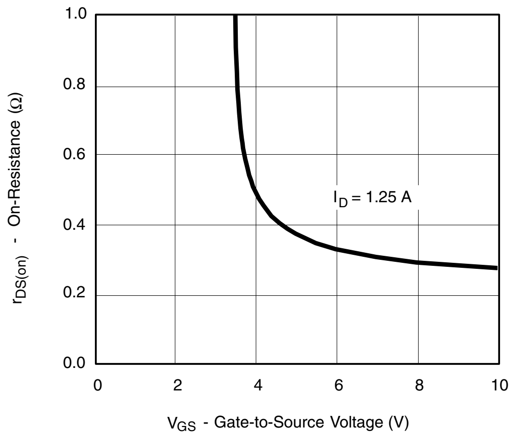
Gate Charge



On-Resistance vs. Junction Temperature

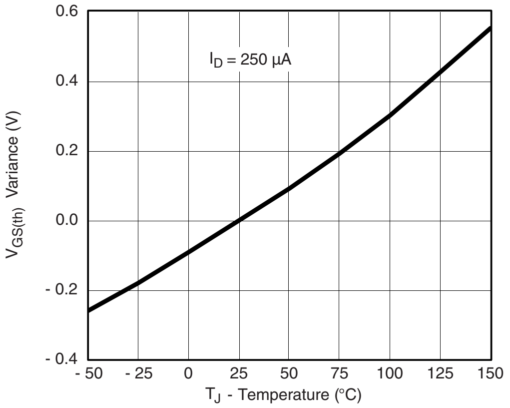


Source-Drain Diode Forward Voltage

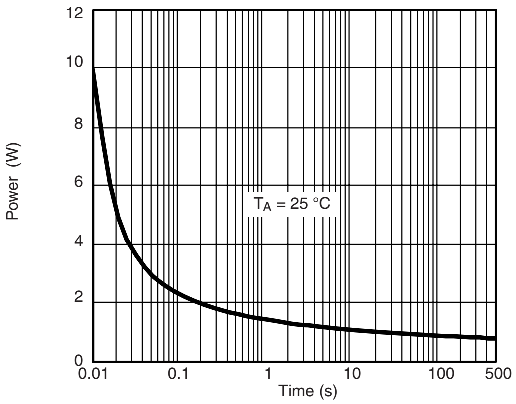


On-Resistance vs. Gate-to-Source Voltage

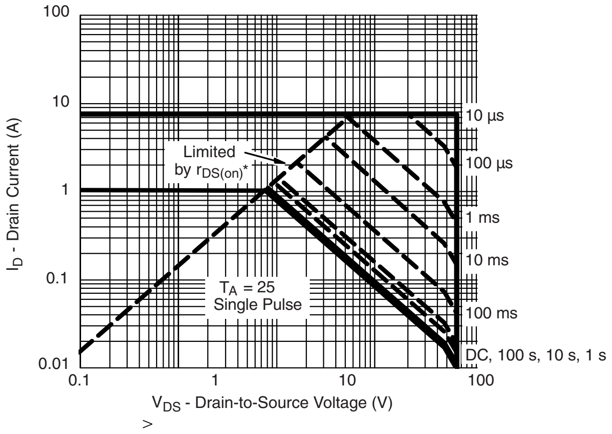
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



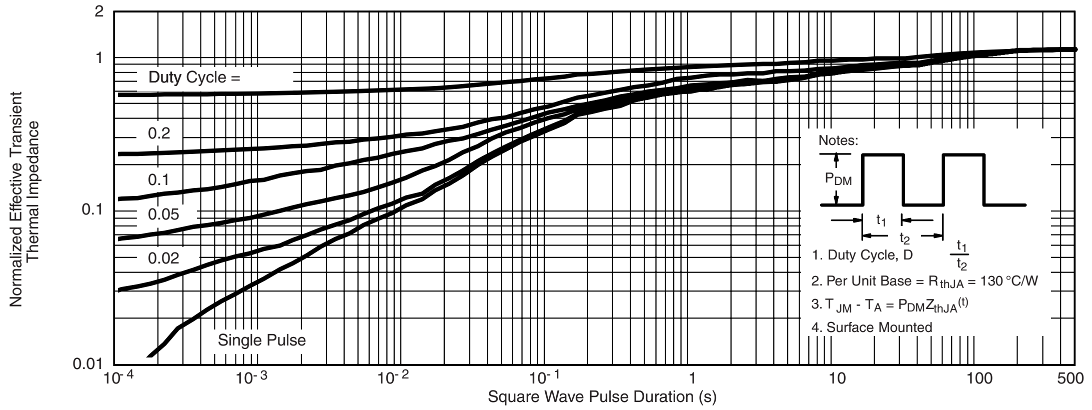
Threshold Voltage



Single Pulse Power



Safe Operating Area, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient