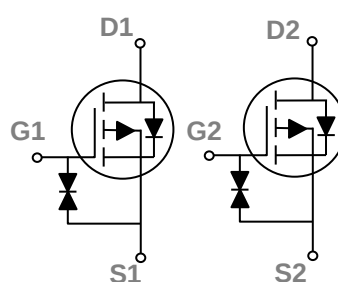


Dual P-Channel High Density Trench MOSFET

FEATURES

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

SOT-363



PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Max
-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	-1	A
	I_{DM}	-4	A
Drain-Source Diode Forward Current ^a	I_S	1	A
Maximum Power Dissipation ^a	P_D	1.25	W
		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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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 = 4A		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		507		pF
Output Capacitance	C _{OSS}			128		pF
Reverse Transfer Capacitance	C _{RSS}			71		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 I _D = -0.8A V _{GS} = -4.5V		18		nC
Gate-Source Charge	Q _{gs}			4.2		nC
Gate-Drain Charge	Q _{gd}			2.8		nC

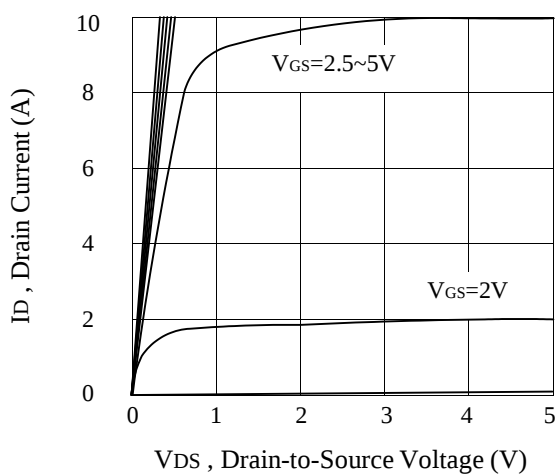


Figure 1. Output Characteristics

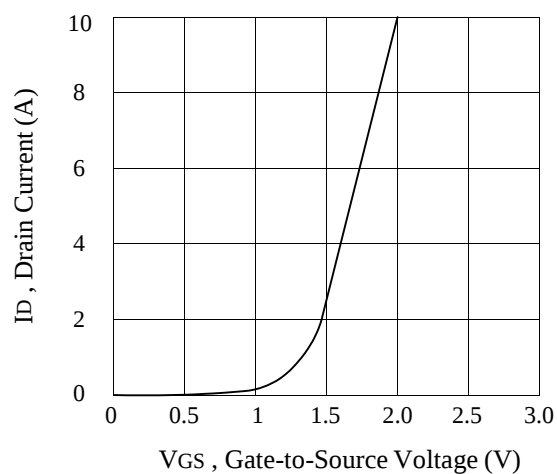


Figure 2. Transfer Characteristics

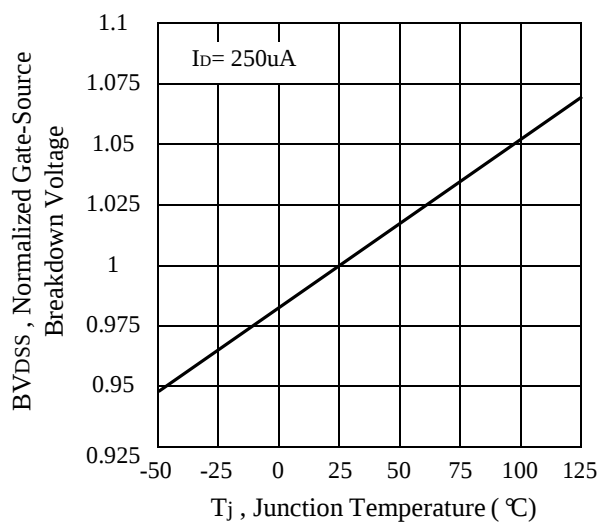


Figure 3. Breakdown Voltage Variation with Temperature

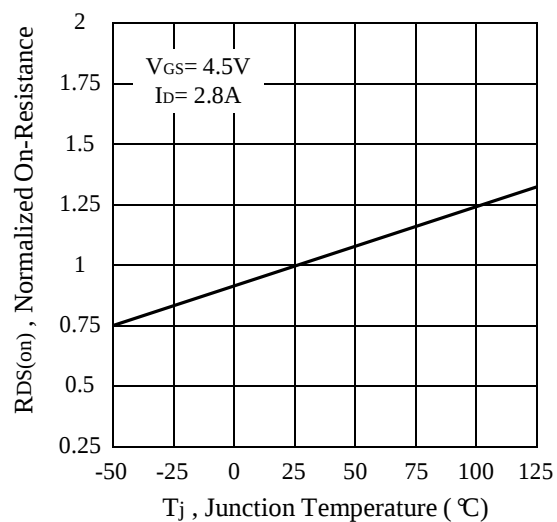


Figure 4. On-Resistance Variation with Temperature

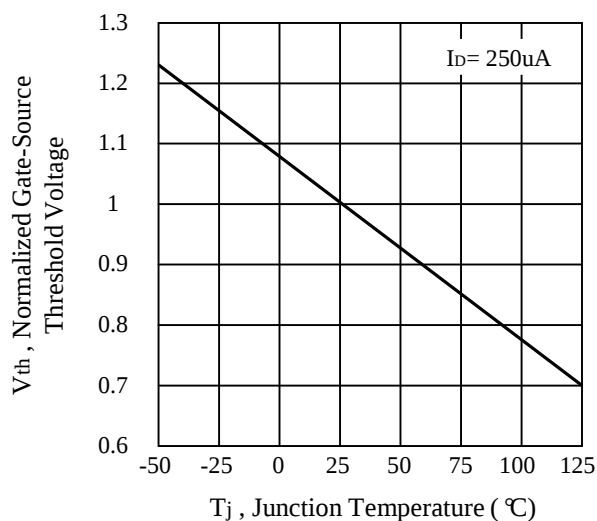


Figure 5. Gate Threshold Variation with Temperature

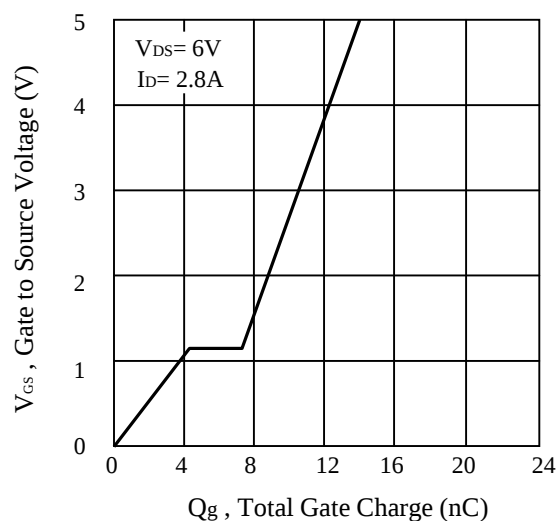


Figure 6. Gate Charge

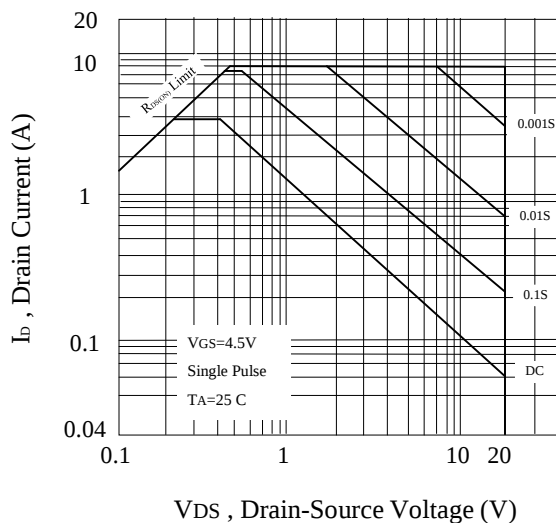


Figure 7. Maximum Safe Operating Area

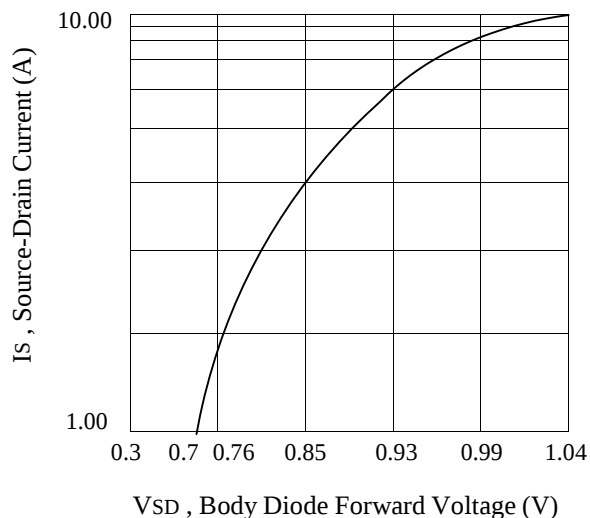


Figure 8. Body Diode Forward Voltage Variation with Source Current

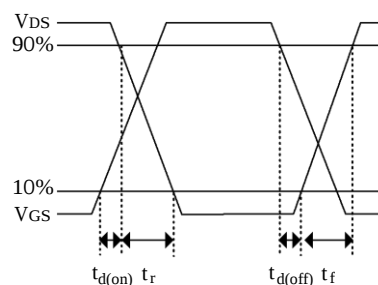
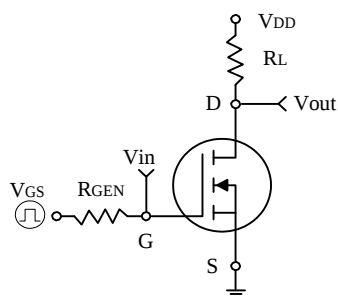


Figure 9. Switching Test Circuit and Switching Waveforms

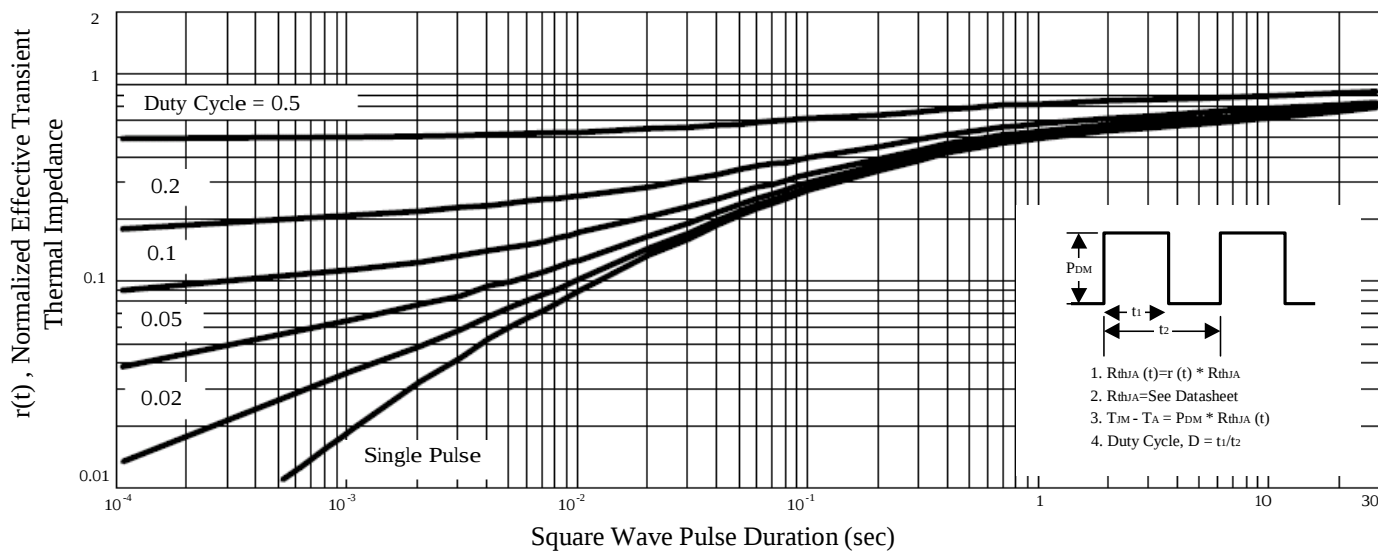


Figure 10. Normalized Thermal Transient Impedance Curve