



**THE DATASHEET OF
DMP3036SSD-13**



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Drain-Source Voltage	V _{DSS}	-30	V	
Gate-Source Voltage	V _{GSS}	±25	V	
Continuous Drain Current (Note 6) V _{GS} = -10V	T _C = +25°C T _C = +70°C	I _D I _D	-18.0 -14.3	A
	T _A = +25°C T _A = +70°C	I _D	-10.6 -8.5	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)	I _{DM}	-80	A	
Maximum Continuous Body Diode Forward Current (Note 6)	I _S	-3.6	A	
Avalanche Current (Note 7) L = 0.3mH	I _{AS}	-17.5	A	
Avalanche Energy (Note 7) L = 0.3mH	E _{AS}	64	mJ	

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units	
Total Power Dissipation (Note 5)	P _D	T _A = +25°C	1.2	W
		T _A = +70°C	0.9	
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	Steady State	104	°C/W
		t < 10s	45	
Total Power Dissipation (Note 6)	P _D	T _A = +25°C	1.7	W
		T _A = +70°C	1.1	
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	Steady State	72	°C/W
		t < 10s	37	
Thermal Resistance, Junction to Case (Note 6)	R _{θJC}	13		
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C	

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV _{DSS}	-30	-	-	V	V _{GS} = 0V, I _D = -1mA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	-	-	-1.0	µA	V _{DS} = -30V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	V _{GS} = ±25V, V _{DS} = 0V
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	V _{GS(th)}	-1.0	-1.7	-3.0	V	V _{DS} = V _{GS} , I _D = -250µA
Static Drain-Source On-Resistance	R _{DS(on)}	-	16	20	mΩ	V _{GS} = -10V, I _D = -9A
		-	22	29		V _{GS} = -5V, I _D = -7A
Diode Forward Voltage	V _{SD}	-	-0.7	-1.0	V	V _{GS} = 0V, I _S = -1A
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C _{iSS}	-	1931	-	pF	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	226	-	pF	
Reverse Transfer Capacitance	C _{rSS}	-	168	-	pF	
Gate Resistance	R _g	-	10.9	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge at V _{GS} = -5V	Q _g	-	8.8	-	nC	V _{DS} = -15V, I _D = -10A
Total Gate Charge at V _{GS} = -10V	Q _g	-	16.5	-	nC	
Gate-Source Charge	Q _{gs}	-	2.6	-	nC	
Gate-Drain Charge	Q _{gd}	-	3.6	-	nC	
Turn-On Delay Time	t _{D(on)}	-	8.2	-	ns	
Turn-On Rise Time	t _r	-	14	-	ns	
Turn-Off Delay Time	t _{D(off)}	-	65	-	ns	
Turn-Off Fall Time	t _f	-	31.6	-	ns	V _{GEN} = -10V, V _{DD} = -15V, R _{GEN} = 3Ω, I _D = -10A

- Notes:
- Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
 - I_{AS} and E_{AS} rating are based on low frequency and duty cycles to keep T_J = +25°C.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

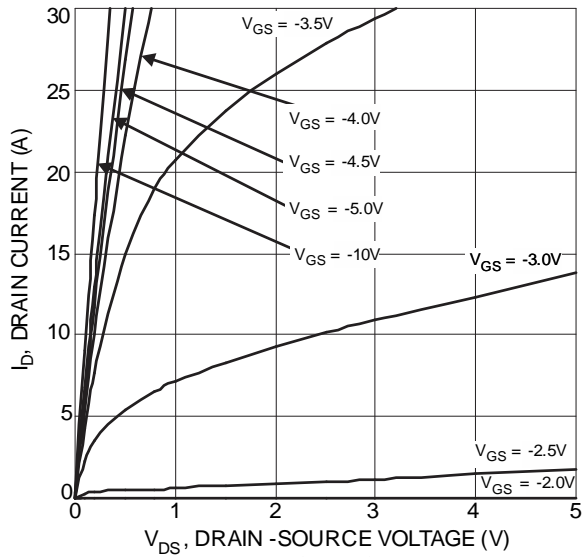


Figure 1 Typical Output Characteristics

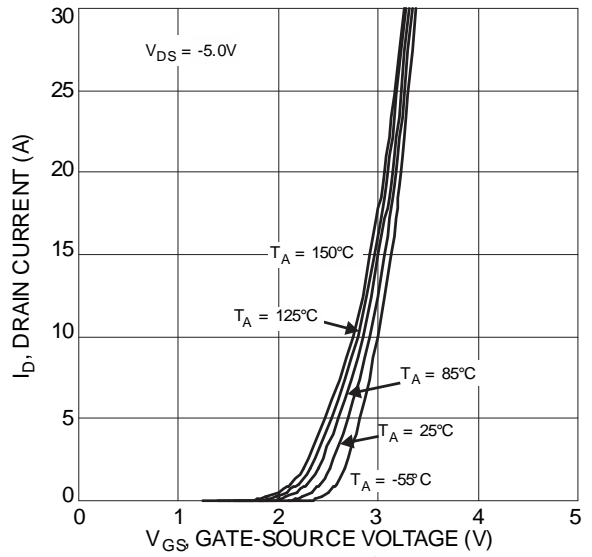


Figure 2 Typical Transfer Characteristics

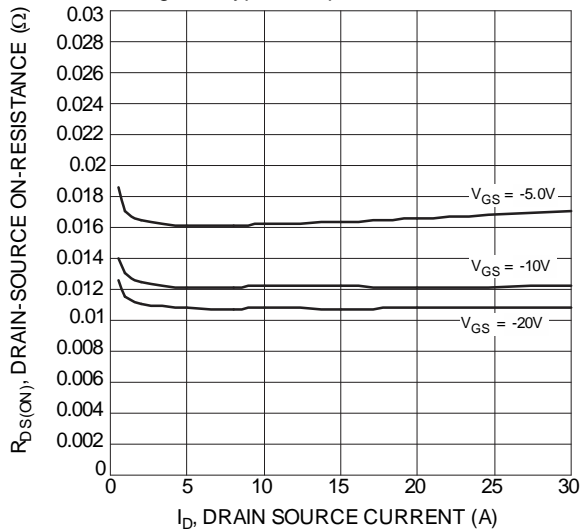


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

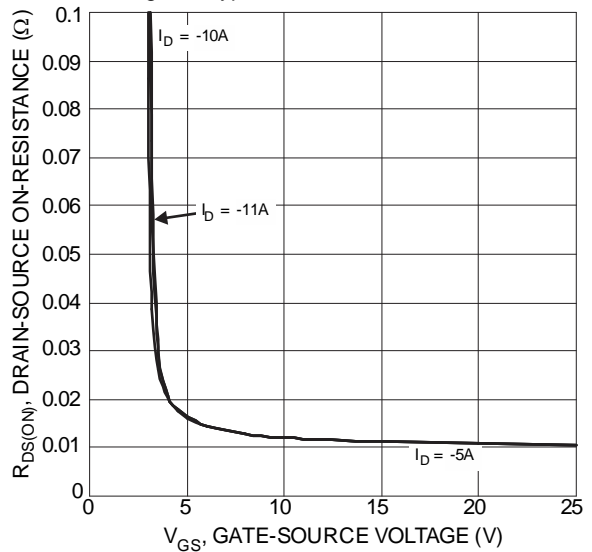


Figure 4 Typical Transfer Characteristics

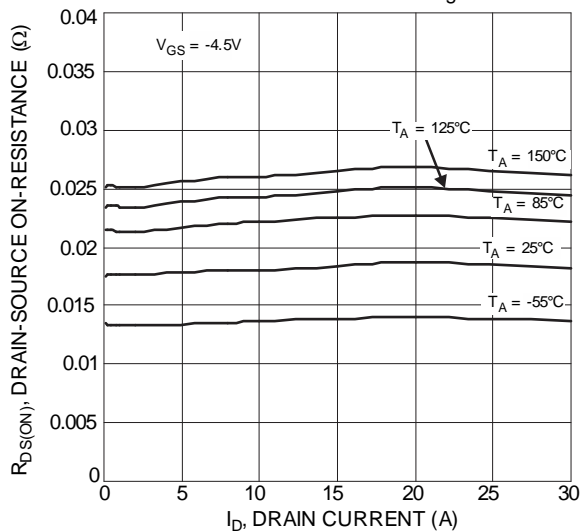


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

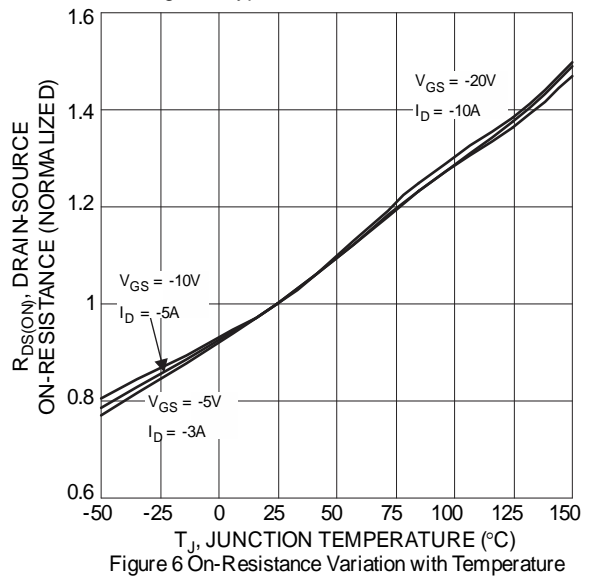


Figure 6 On-Resistance Variation with Temperature

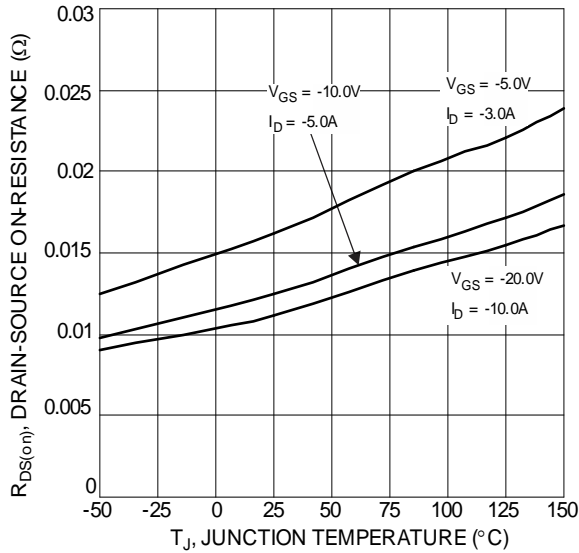


Figure 7 On-Resistance Variation with Temperature

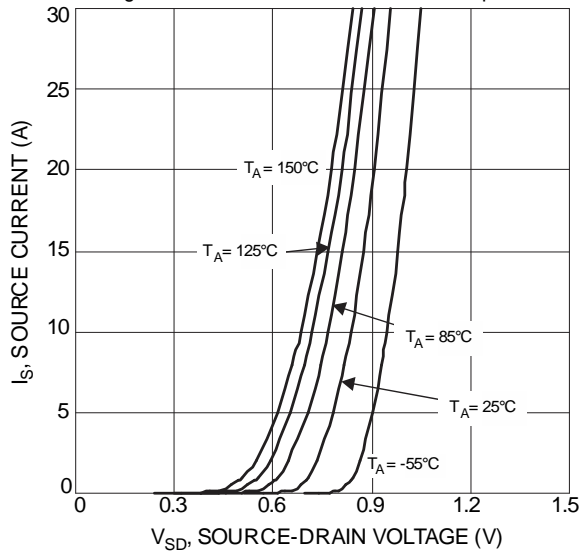


Figure 9 Diode Forward Voltage vs. Current

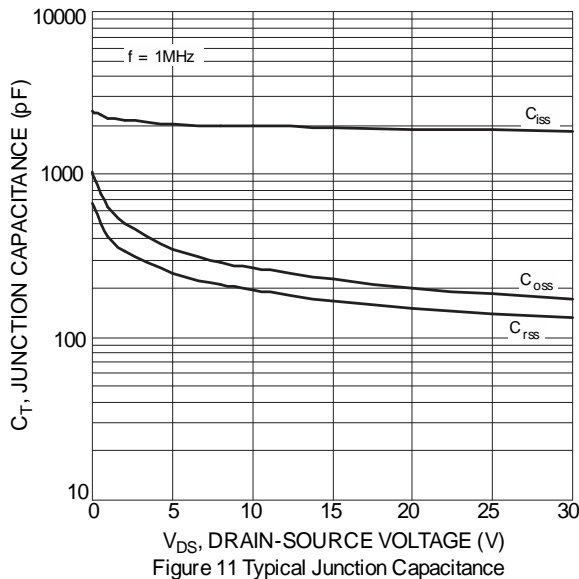


Figure 11 Typical Junction Capacitance

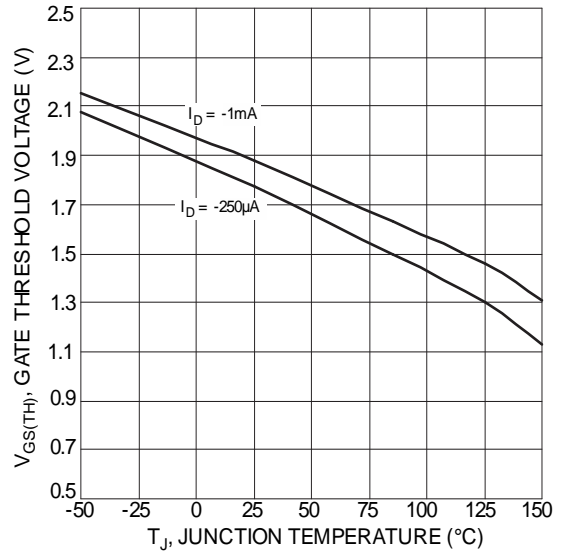


Figure 8 Gate Threshold Variation vs. Ambient Temperature

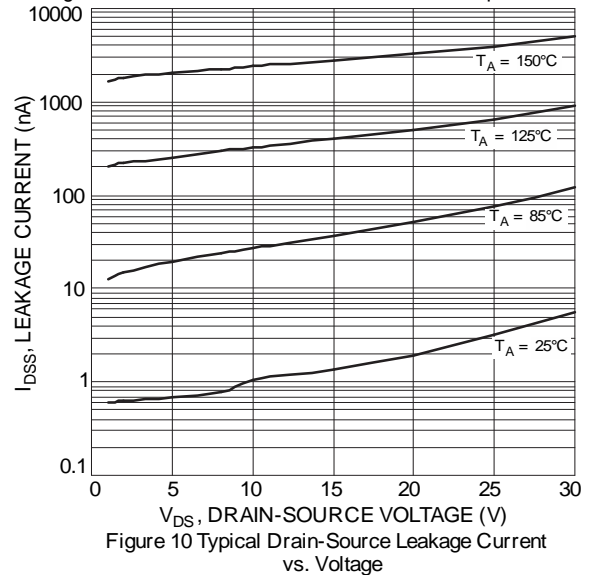


Figure 10 Typical Drain-Source Leakage Current vs. Voltage

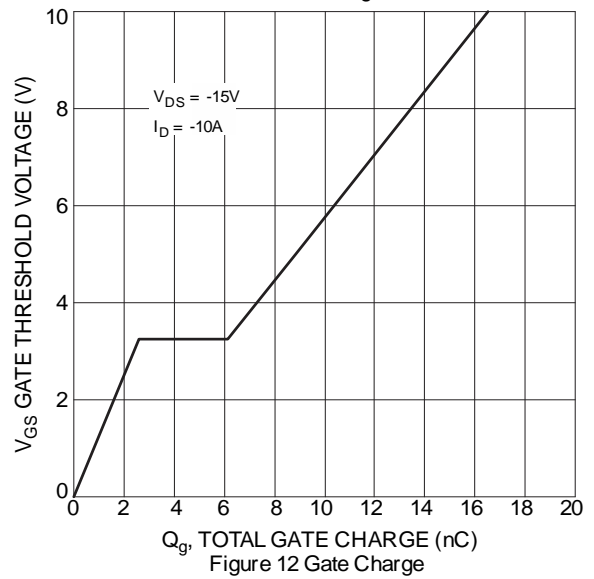
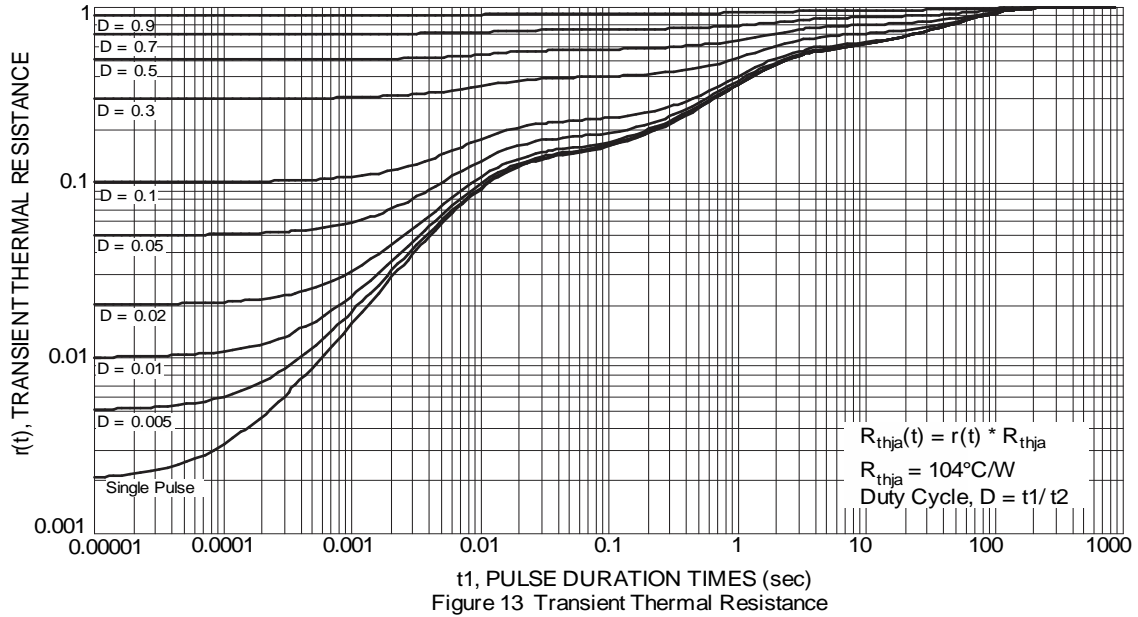


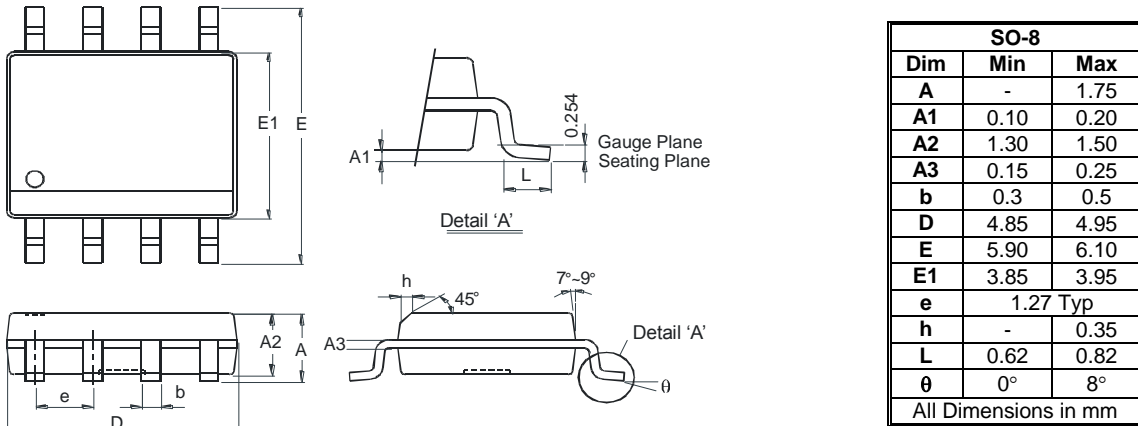
Figure 12 Gate Charge



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