

Descriptions

This -20V,-7A P-Channel MOSFET in a DFN2×2-6L Plastic Package.

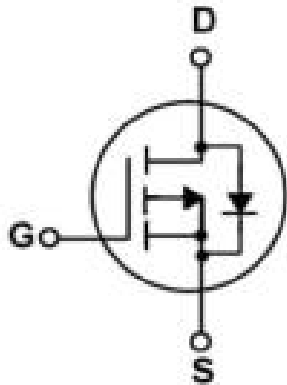
Features

- $V_{DS} (V) = -20V \quad I_D = -7A$
- $R_{DS(ON)}@-10V (Typ) = 23.7m\Omega$
- Halogen-free Product.

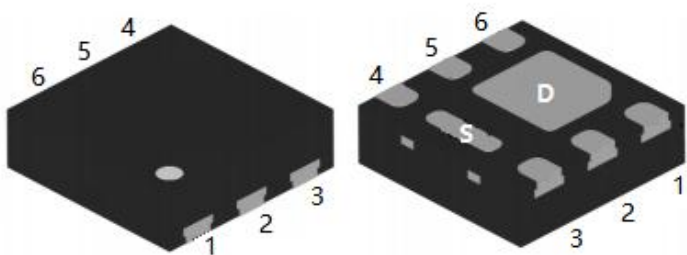
Applications

Power Management in Notebook computer, Portable Equipment and Battery powered systems

Equivalent Circuit



Pinning



- Pin1, Pin2, Pin5, Pin6: Drain
- Pin3: Gate
- Pin4: Source

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	± 12	V
Continuous Drain Current	$I_D (T_a=25^\circ\text{C})$	-7	A
Continuous Drain Current	$I_D (T_a=70^\circ\text{C})$	-5	A
Pulsed Drain Current	I_{DM}	-28	A
Avalanche Current	I_{AS}	21	A
Avalanche energy L=0.5mH	E_{AS}	308	mJ
Power Dissipation for Single Operation	$P_D (T_a=25^\circ\text{C})$	2.8	W
Maximum Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 ~ 150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA} (\leq 10\text{s})$	45	$^\circ\text{C}/\text{W}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	80	$^\circ\text{C}/\text{W}$

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A$ $V_{GS}=0V$	-20	-23		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V$ $V_{GS}=0V$			-1.0	μA
		$V_{DS}=-20V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5.0	
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V$ $V_{GS}=\pm 12V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V$ $I_D=-3.5A$		23.7	30	m Ω
		$V_{GS}=-4.5V$ $I_D=-2.8A$		30.4	40	
		$V_{GS}=-2.5V$ $I_D=-2.0A$		43.6	50	
Forward Transconductance	g_{FS}	$V_{DS}=-4.5V$ $I_D=-3.5A$		8.8		S
Diode Forward Voltage	V_{SD}	$I_S=-1A$ $V_{GS}=0V$		0.75		V
Total Gate Charge	Q_g	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $I_D=-8A$		13		nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			3.4		
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=-25V$ $f=1MHz$		1050		pF
Output Capacitance	C_{oss}			155		
Reverse Transfer Capacitance	C_{rss}			125		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $R_L=1.25\Omega$ $R_{GEN}=3\Omega$		7		ns
Turn-on Rise Time	t_r			28		
Turn-off Delay Time	$t_{d(OFF)}$			95		
Turn-off Fall Time	t_f			46		

Electrical Characteristic Curve

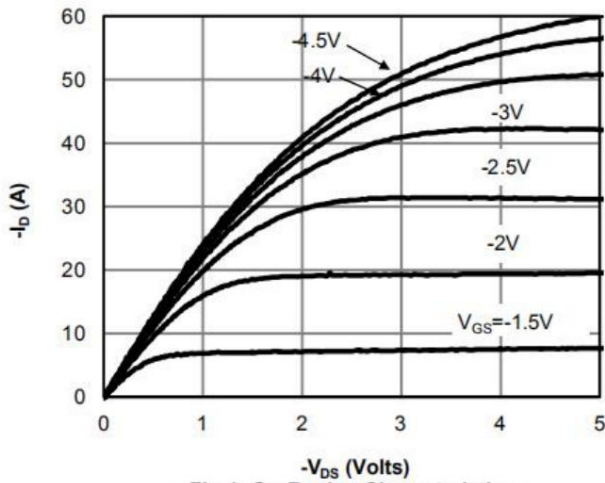


Fig 1: On-Region Characteristics

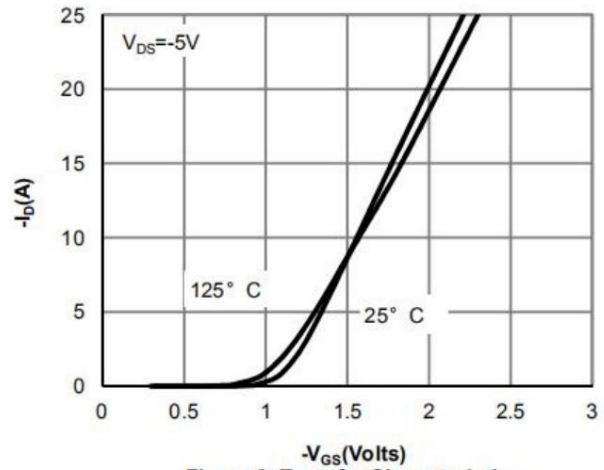


Figure 2: Transfer Characteristics

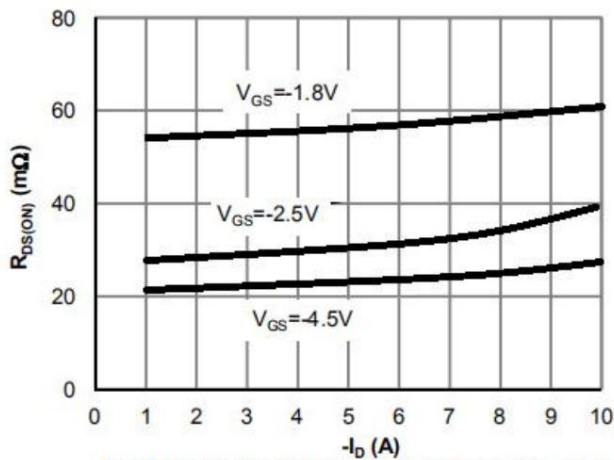


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

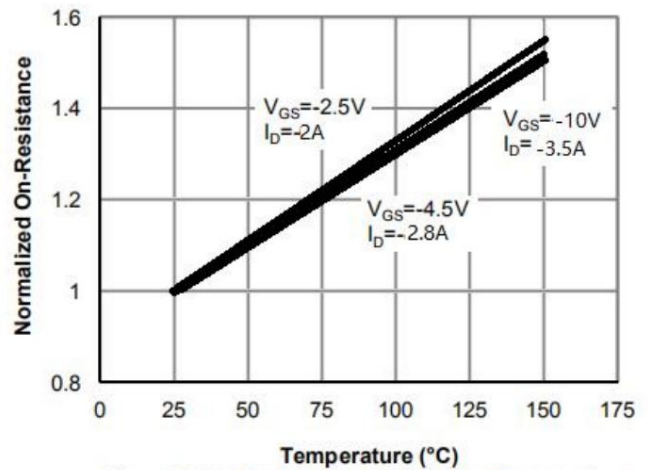


Figure 4: On-Resistance vs. Junction Temperature

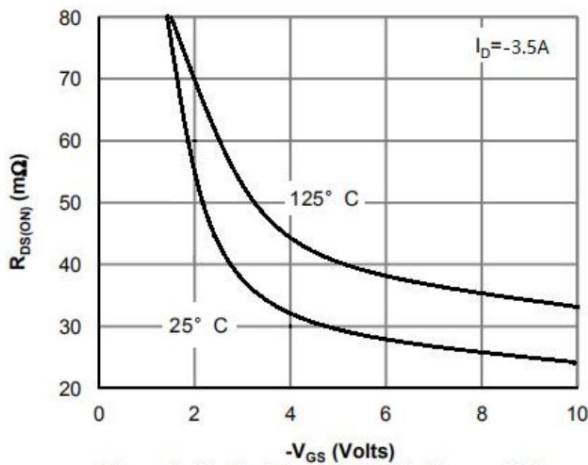


Figure 5: On-Resistance vs. Gate-Source Voltage

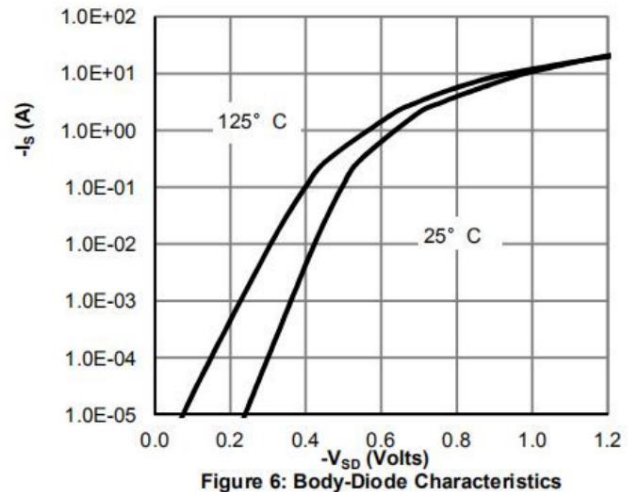


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

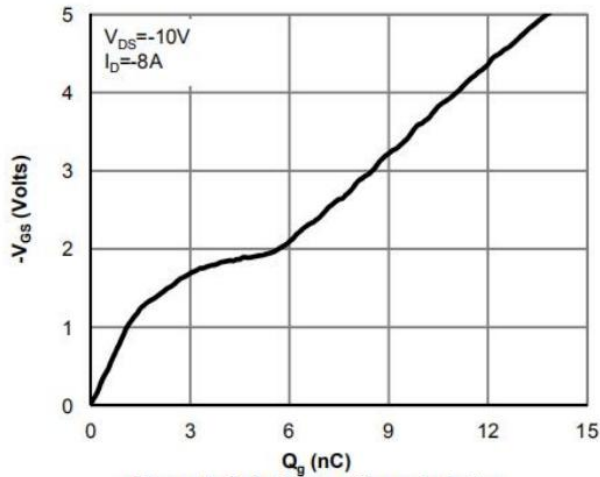


Figure 7: Gate-Charge Characteristics

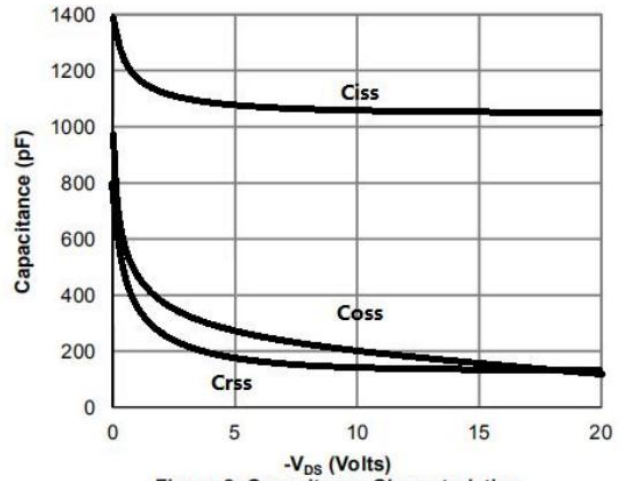


Figure 8: Capacitance Characteristics

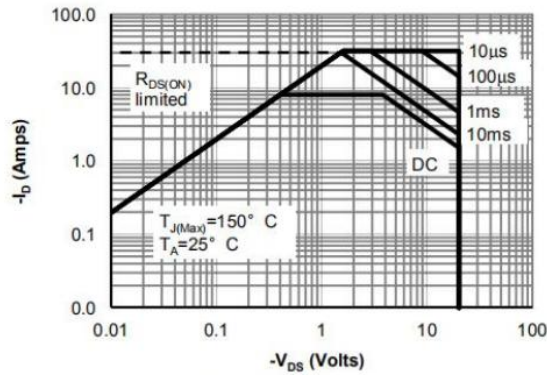


Figure 9: Maximum Forward Biased Safe Operating Area

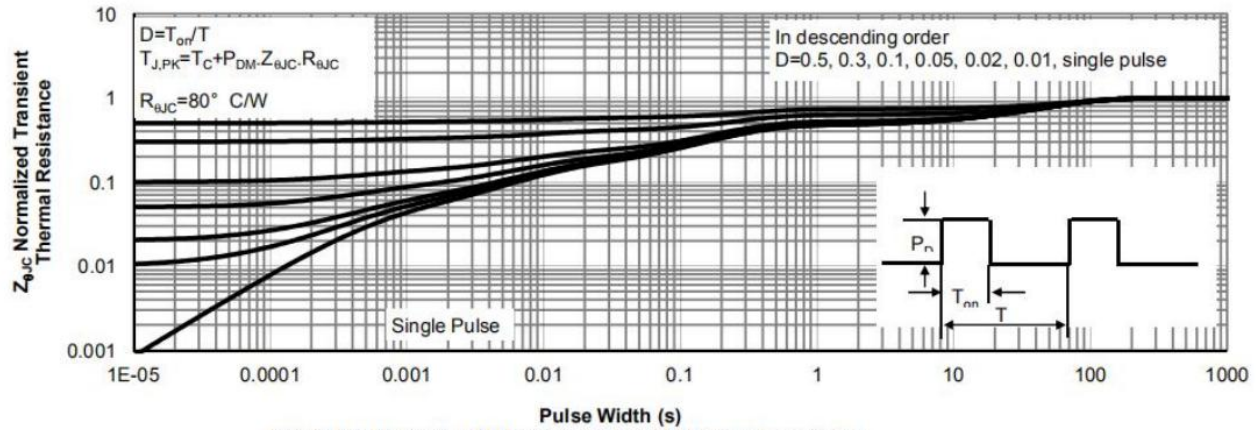
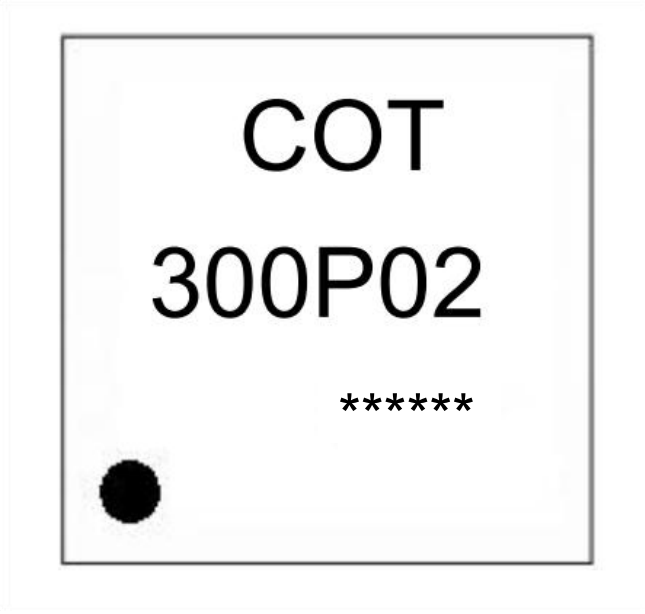


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:
 COT: Company Code.
 300P02: Product Type
 ****: Lot No. Code, code change with Lot No.

Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
DFN2×2-6L	4,000	10	40,000	4	160,000	7" ×8	210×205×205	445×230×435

Package Outline Dimensions

DFN2x2-6L-0.5

Unit:mm

