

Descriptions

This -40V -10A P-Channel Power Trench MOSFET in a SOP-8 Plastic Package.

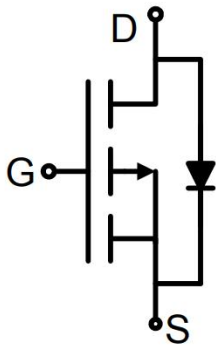
Features

- V_{DS} (V) = -40V
- I_D = -10 A ($V_{GS} = \pm 20V$)
- $R_{DS(on)}$ Typ= 13.1m Ω ($V_{GS} = -10V$)
- Halogen-free Product.

Applications

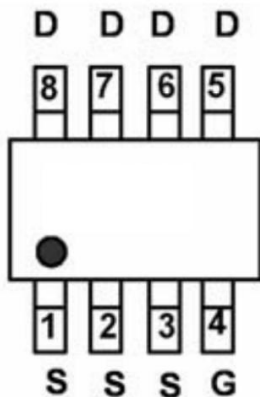
Power Management in Notebook computer, Portable Equipment and Battery powered systems.

Equivalent Circuit



Schematic diagram

Pinning



Pin Assignment



SOP-8 top view

Absolute Maximum Ratings($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-40	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	$I_{\text{D}} (T_a=25^{\circ}\text{C})$	-10	A
Continuous Drain Current	$I_{\text{D}} (T_a=70^{\circ}\text{C})$	-8	A
Power Dissipation for Single Operation	$P_{\text{D}} (T_a=25^{\circ}\text{C})$	1.7	W
Power Dissipation for Single Operation	$P_{\text{D}} (T_a=70^{\circ}\text{C})$	1.1	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	$R_{\theta\text{JA}} (t \leq 10\text{s})$	40	$^{\circ}\text{C/W}$
Thermal Resistance-Junction to Ambient	$R_{\theta\text{JA}}$	75	$^{\circ}\text{C/W}$
Maximum Junction-to-Lead	$R_{\theta\text{JL}}$	24	$^{\circ}\text{C/W}$

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = -250\mu A$ $V_{GS} = 0V$	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -40V$ $V_{GS} = 0V$			-1.0	μA
		$V_{DS} = -40V$ $V_{GS} = 0V$ $T_J = 55^\circ C$			-5.0	
Gate-Body leakage current	I_{GSS}	$V_{DS} = 0V$ $V_{GS} = \pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ $I_D = -250\mu A$	-1.2	-1.6	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = -10V$ $I_D = -10A$		13.1	15	m Ω
		$V_{GS} = -4.5V$ $I_D = -7A$		18	21	
Forward Transconductance	g_{FS}	$V_{DS} = -5V$ $I_D = -10A$		9.5		S
Diode Forward Voltage	V_{SD}	$I_S = -1A$ $V_{GS} = 0V$		-0.8	-1.0	V
Total Gate Charge	$Q_g(10V)$	$V_{GS} = -10V$ $V_{DS} = -20V$ $I_D = -10A$		42	55	nC
Total Gate Charge	$Q_g(4.5V)$			18.6		
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			8.6		
Gate Resistance	R_g	$V_{GS} = 0V$ $f = 1MHz$ $V_{DS} = 0V$		8.5		Ω
Input Capacitance	C_{iss}	$V_{GS} = 0V$ $f = 1MHz$ $V_{DS} = -25V$		3300		pF
Output Capacitance	C_{oss}			135		
Reverse Transfer Capacitance	C_{rss}			177		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS} = -10V$ $V_{DS} = -20V$ $R_L = 2\Omega$ $R_{GEN} = 3\Omega$		9.4		ns
Turn-on Rise Time	t_r			20		
Turn-off Delay Time	$t_{d(OFF)}$			55		
Turn-off Fall Time	t_f			30		

Electrical Characteristic Curve

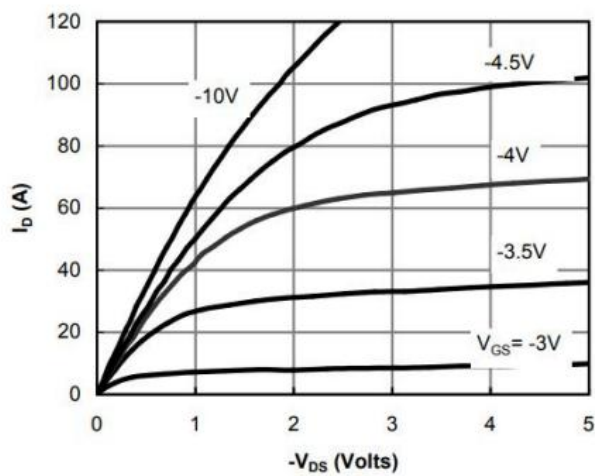


Figure 1: On-Region Characteristics

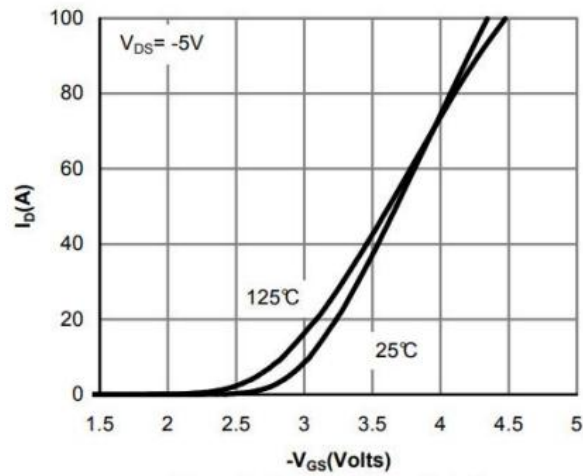


Figure 2: Transfer Characteristics

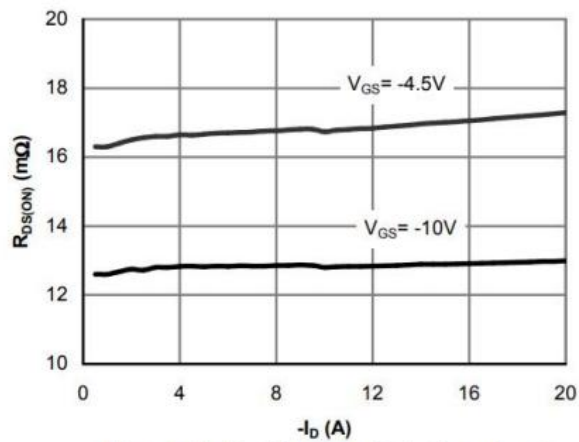


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

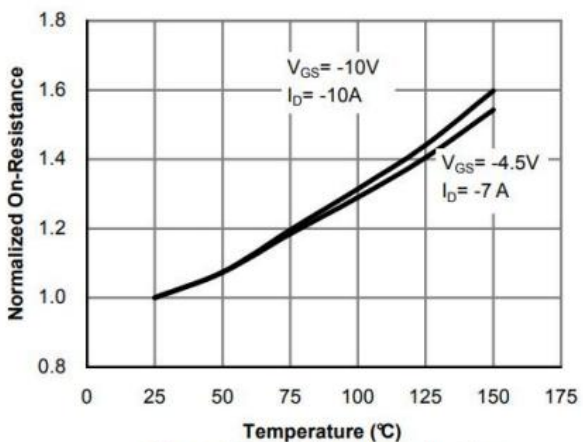


Figure 4: On-Resistance vs. Junction Temperature

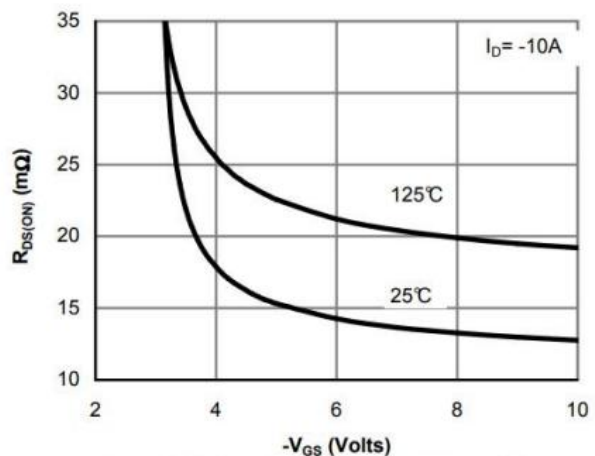


Figure 5: On-Resistance vs. Gate-Source Voltage

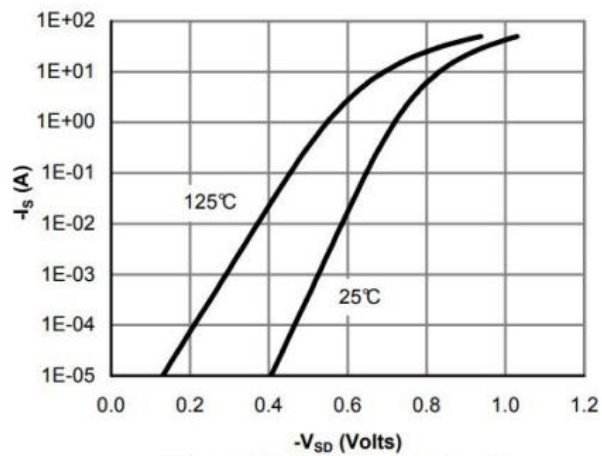
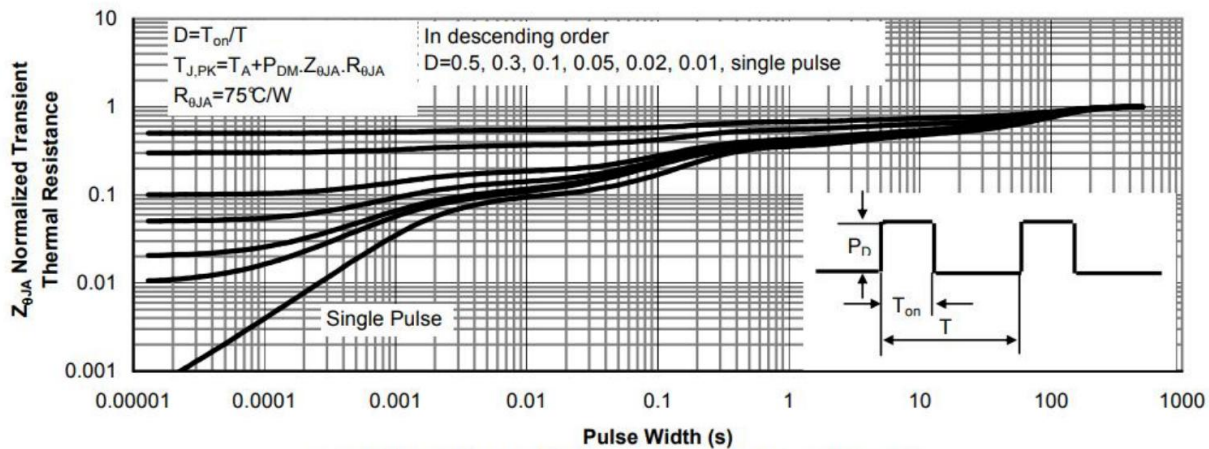
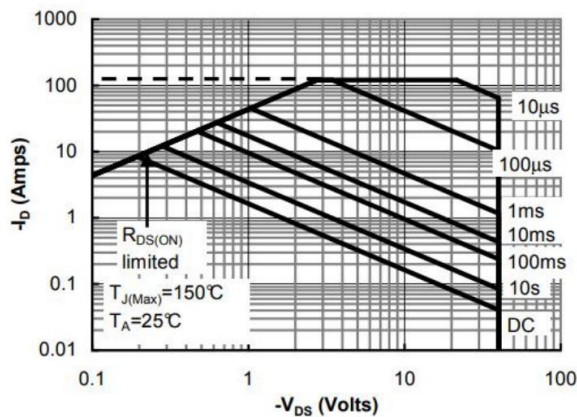
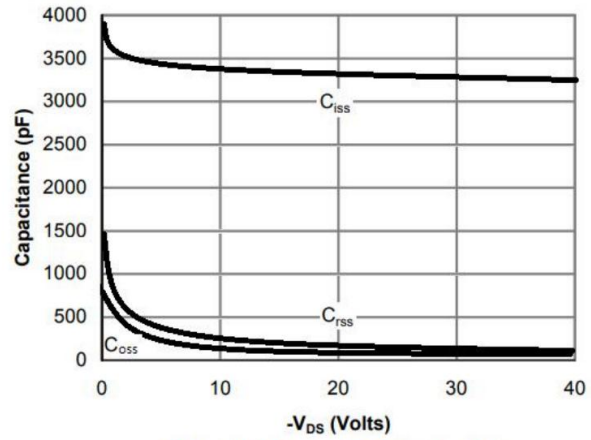
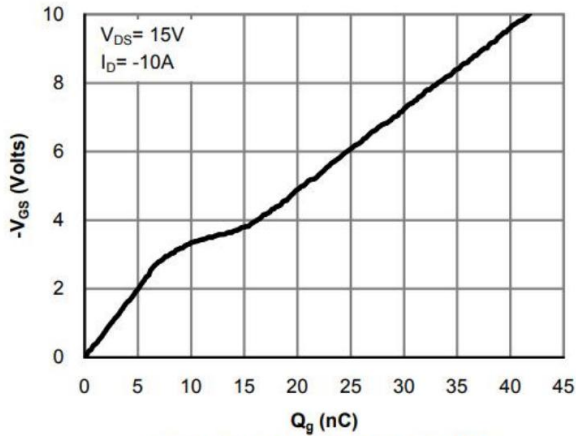


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve



Marking Instructions



Note:
COT: Company Logo
150P04: 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
SOP-8	4,000	2	8,000	6	48,000	13" ×12	360×360×50	380×335×366

Package Outline Dimensions

SOP-8

Unit:mm

