

DESCRIPTION

The STP4407 is the P-Channel logic enhancement mode power field effect transistor is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	VDSS	-30	V
Gate-Source Voltage	VGSS	±20	V
Continuous Drain Current (TJ=150°C)	ID	TA=25°C -10	A
		TA=70°C -6	
Pulsed Drain Current	IDM	-50	A
Continuous Source Current (Diode Conduction)	IS	-20	A
Power Dissipation	PD	TA=25°C 2.5	W
		TA=70°C 2.0	
Operation Junction Temperature	TJ	-55/150	°C
Storage Temperature Range	TSTG	-55/150	°C
Thermal Resistance-Junction to Ambient	RθJA	50	°C/W

ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-2.5	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS} $T_J=55^\circ C$	$V_{DS}=-30V, V_{GS}=0V$			-1	uA
		$V_{DS}=-30V, V_{GS}=0V$			-5	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-10A$		15	20	mΩ
		$V_{GS}=-4.5V, I_D=-6.0A$		24	32	
Forward Transconductance	gfs	$V_{DS}=-5V, I_D=-10A$		26		S
Diode Forward Voltage	V_{SD}	$I_S=-1$				

TYPICAL CHARACTERISTICS

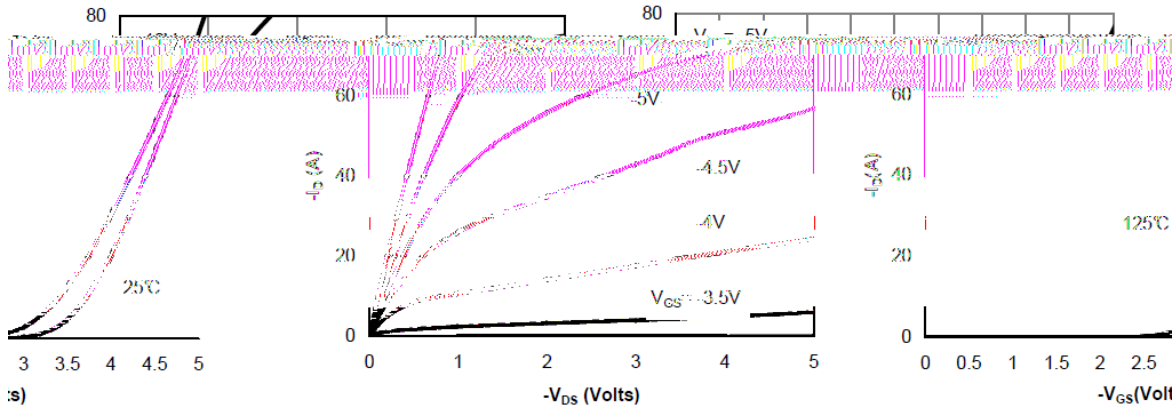


Figure 1: On-Region Characteristics

Figure 2: Transfer C

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

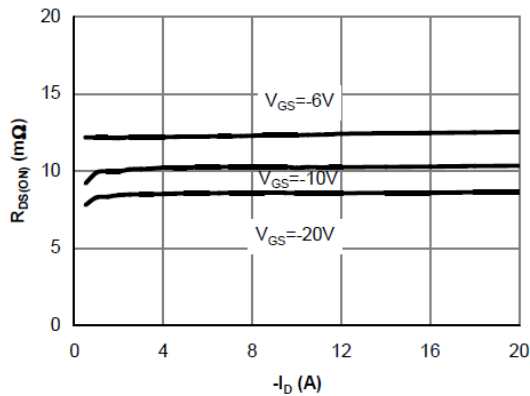
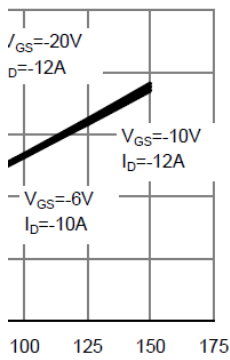


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Temperature

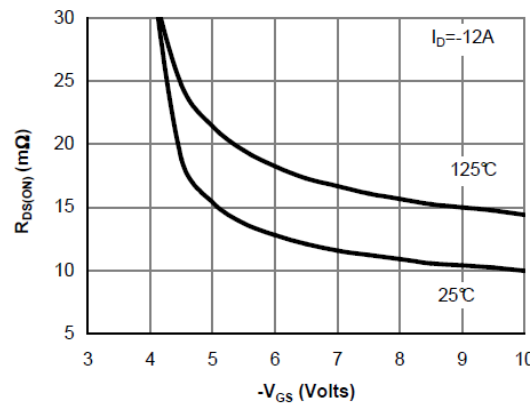
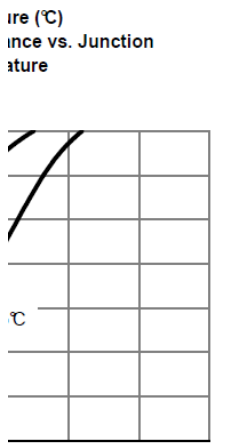


Figure 5: On-Resistance vs. Drain-Source Voltage

Figure 6: Drain Current vs. Drain-Source Voltage

TYPICAL CHARACTERISTICS

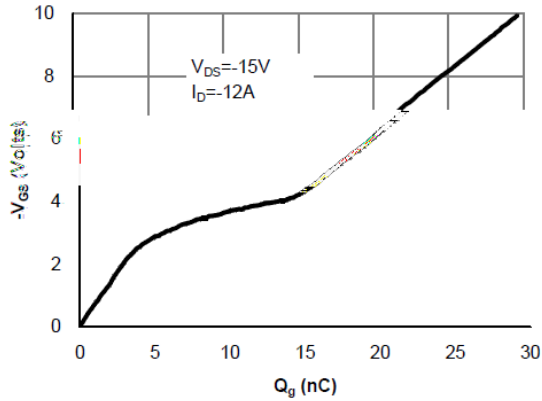


Figure 7: Gate-Charge Characteristics

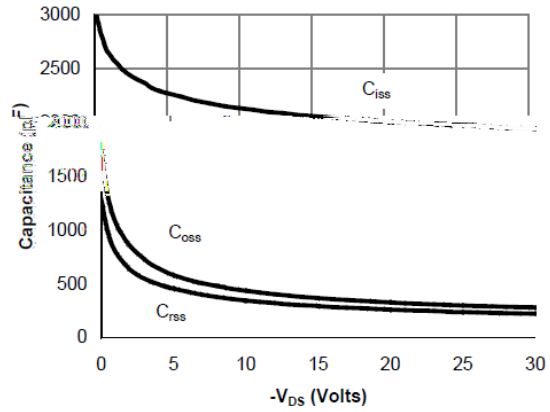


Figure 8: Capacitance Characteristics

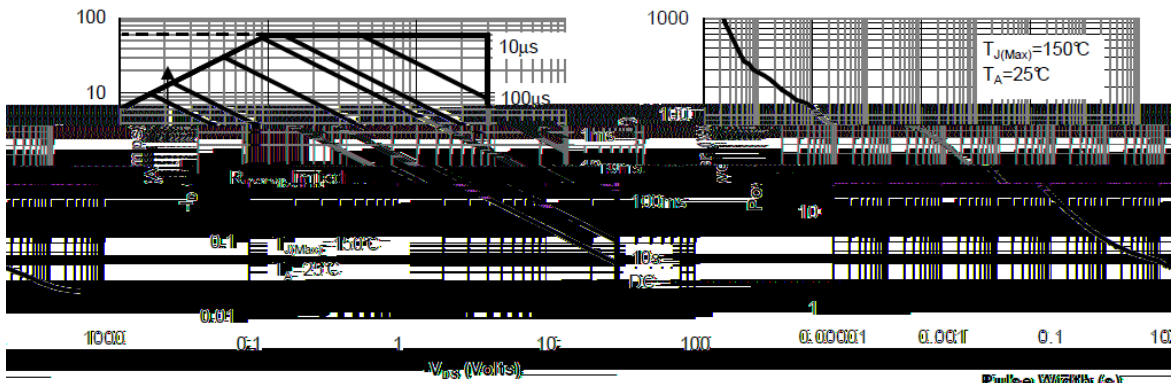


Figure 9: Maximum Forward-Biased Safe Operating Area (Note F)

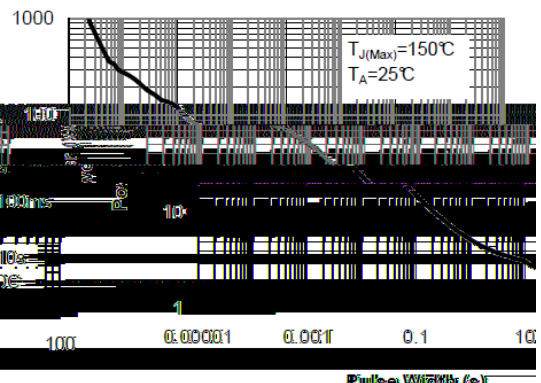


Figure 10: Single Pulse Power Rating (Note F)

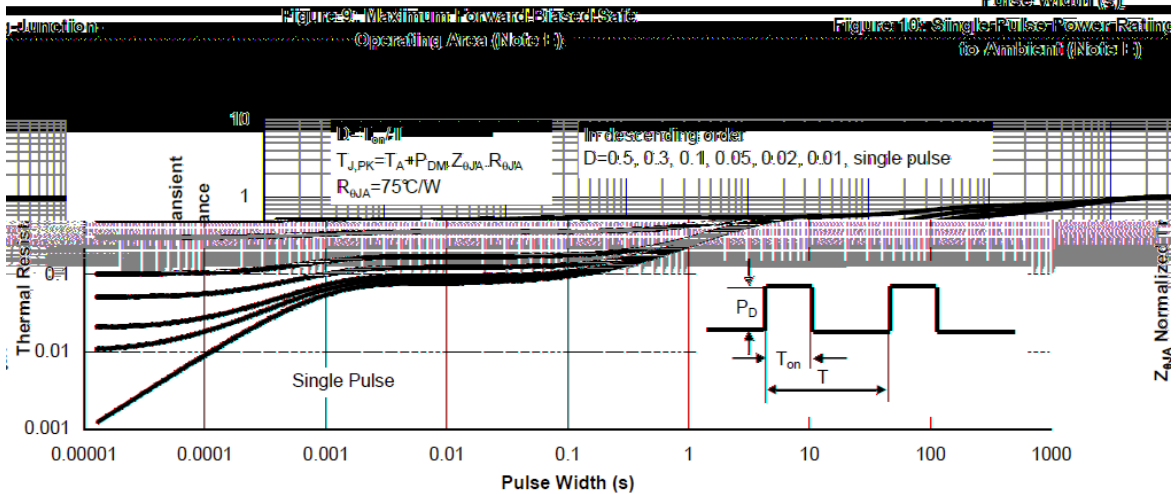
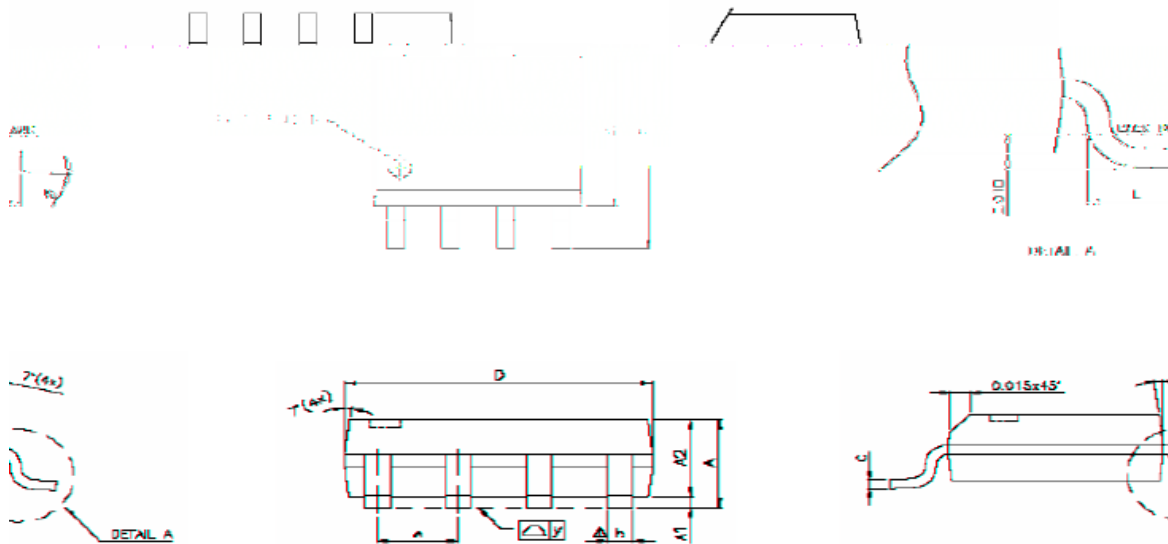


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

PACKAGE OUTLINE SOP-8P



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.47	1.60	1.73	0.058	0.063	0.068
B	—	—	1.25	—	—	0.050
C	0.025	0.150	0.20	0.001	0.019	0.008
D	0.195	4.20	4.25	4.90	0.169	0.191
E	0.231	5.80	6.80	7.83	0.229	0.268
F	0.167	3.80	3.80	4.90	0.150	0.154
G	—	—	1.27	—	—	0.050
H	0.050	0.38	0.71	1.27	0.015	0.028
I	0.003	—	—	0.076	—	—
J	8°	0°	—	8°	0°	—