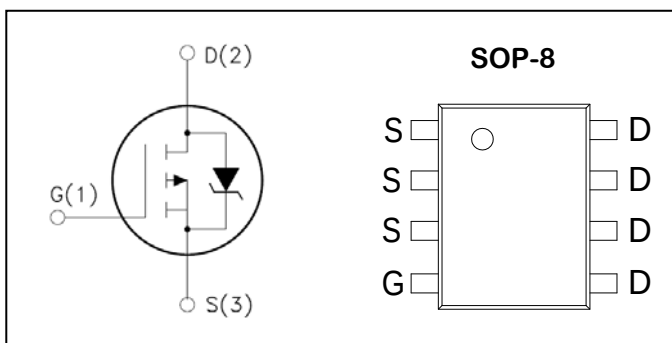


P-Channel Logic Level Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(ON)}$ (m Ω)
-40V	-6A	47m Ω



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter		Ratings	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		-40	V
V _{GSS}	Gate-Source Voltage		± 20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _C =25°C	-6	A
Mounted on Large Heat Sink				
I _{DM}	300μs Pulse Drain Current Tested(1)	T _C =25°C	-24	A
I _D	Continuous Drain Current	T _C =25°C	-6	A
		T _C =100°C	-4	A
P _D	Maximum Power Dissipation	T _C =25°C	3	W

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
R_{thJC}	Thermal resistance junction-case max	4.6	$^\circ\text{C/W}$
R_{thJA}	Thermal resistance junction-ambient max(PCB mounted) (2)	41.7	$^\circ\text{C/W}$

- Pulse width limited by maximum junction temperature.
- 1-in² 2oz Cu PCB board

Electrical Characteristics (TA=25°C Unless Otherwise Noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
On/off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250uA	-40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -40V, V _{GS} =0V	--	--	-1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250uA	-1.0	-1.5	-2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} = ±20V, V _{DS} =0V	--	--	±100	nA
R _{DS(ON)}	Drain-SourceOn-stateResistance(2)	V _{GS} = -10V, I _{DS} =-6A	--	36	47	mΩ
		V _{GS} = -4.5V, I _{DS} =-4A	--	47	66	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} = -20V, Frequency=1.0MHz	--	1034	--	pF
C _{oss}	Output Capacitance		--	107	--	
C _{rss}	Reverse Transfer Capacitance		--	79.5	--	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time(1)	V _{DS} =-20V, I _D = -6A, V _{GS} = -10V, R _{GEN} =2.5 Ω	--	8	--	ns
t _r	Turn-on Rise Time(1)		--	15	--	
t _{d(OFF)}	Turn-off Delay Time(1)		--	23	--	
t _f	Turn-off Fall Time(1)		--	9	--	
Q _g	Total Gate Charge(1)	V _{DS} =-20V, V _{GS} = -10V, I _{DS} =-3A	--	20	--	nC
Q _{gs}	Gate-Source Charge(1)		--	3.5	--	
Q _{gd}	Gate-Drain Charge(1)		--	4.2	--	
Diode Characteristics						
V _{SD}	Diode Forward Voltage(2)	I _{SD} = -6A, V _{GS} = 0	--	-0.8	-1.2	V

NOTES:

1. Independent of operating temperature.
2. Pulse Test : Pulse width ≤ 300 μs, Duty cycle ≤ 2%

Typical Performance Characteristics

Figure 1: On-Region Characteristics

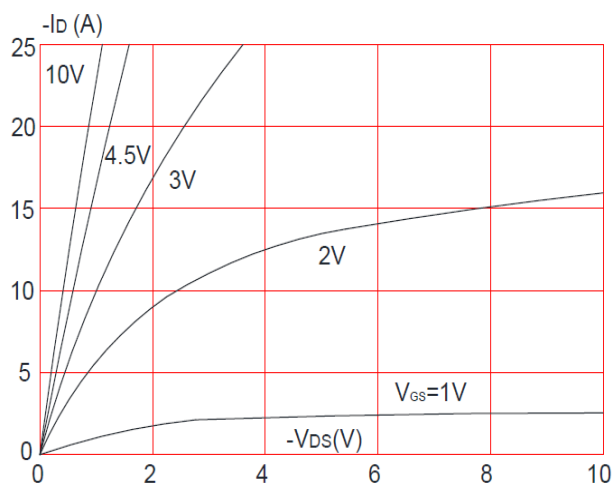


Figure 2: Typical Transfer Characteristics

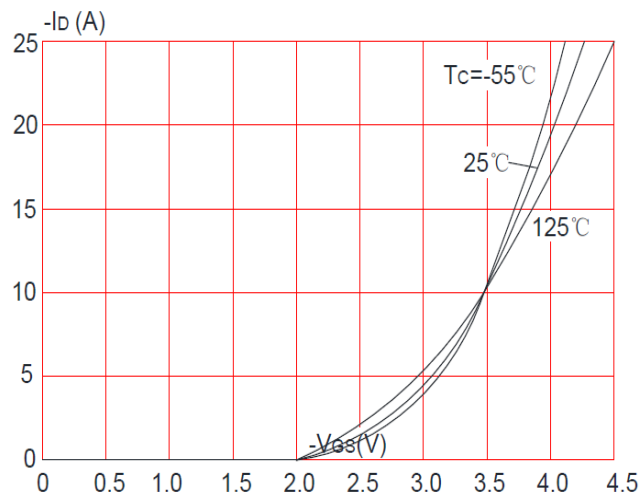


Figure 3: Forward Characteristics of Reverse

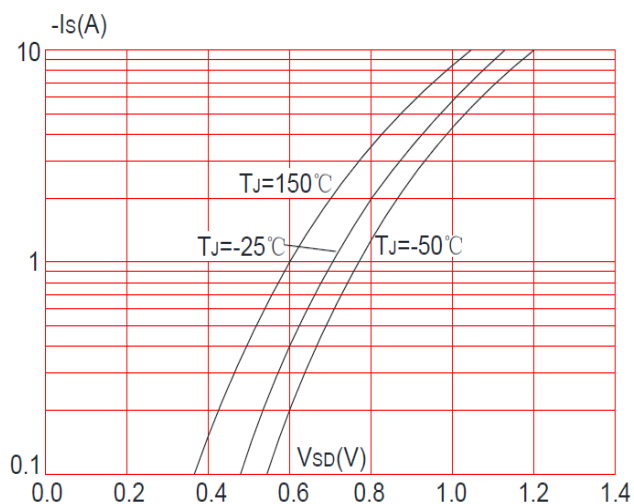


Figure 4: Normalized Breakdown Voltage vs. Junction Temperature

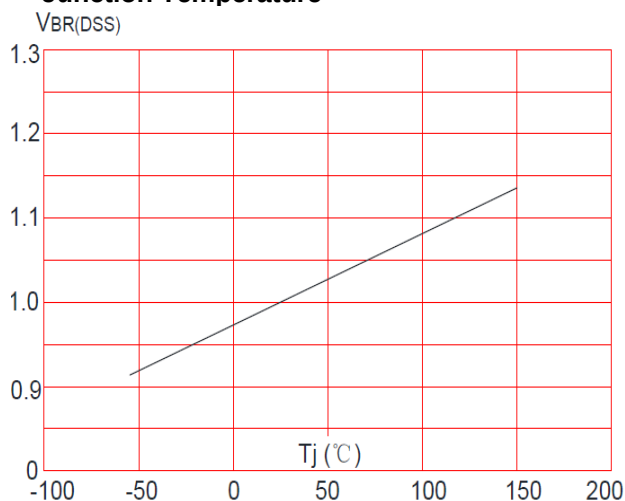


Figure 5: Normalized $R_{DS(on)}$ vs. T_j

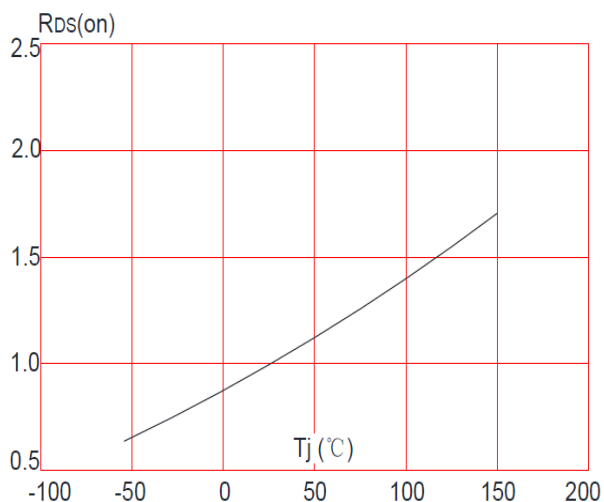


Figure 6: Gate Charge Characteristics

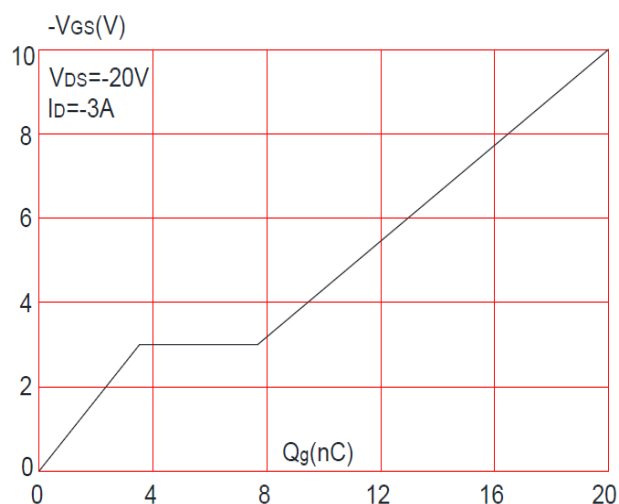


Figure 7: Capacitance

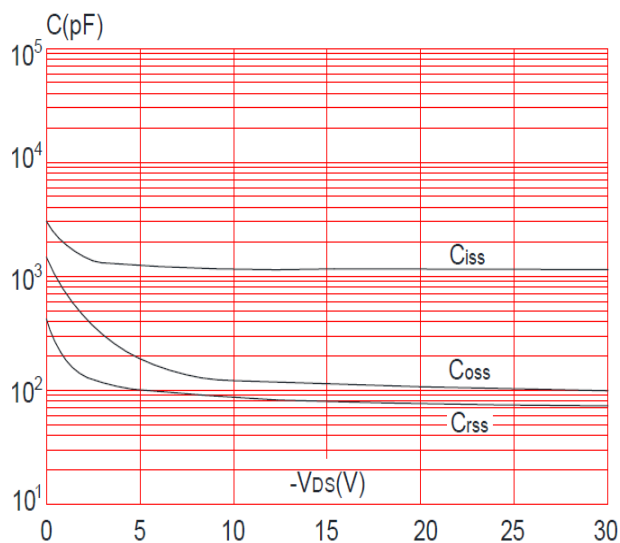


Figure 8: Safe Operating Area

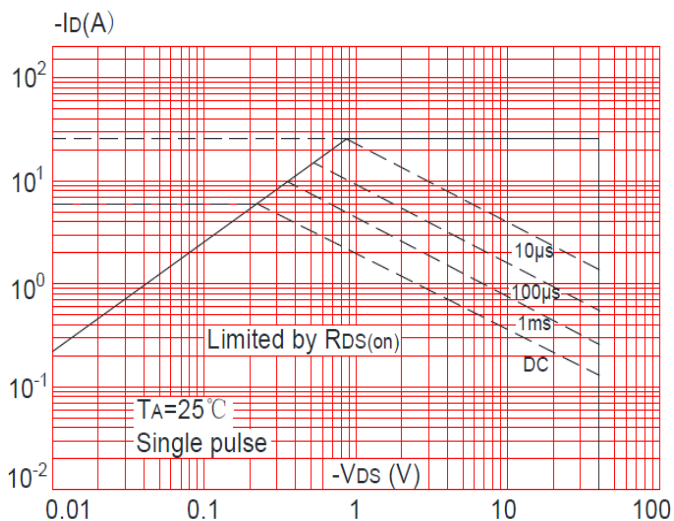
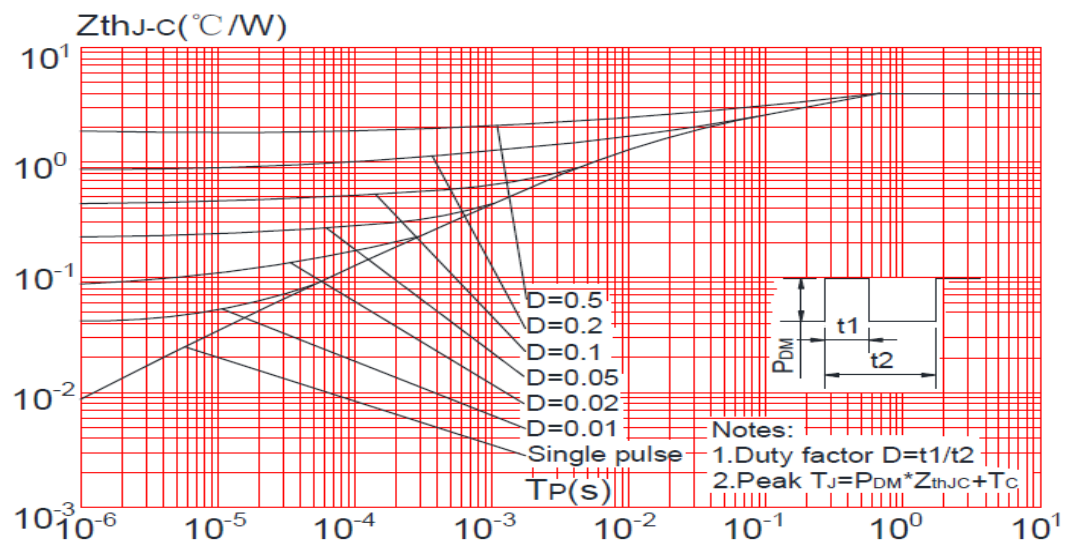
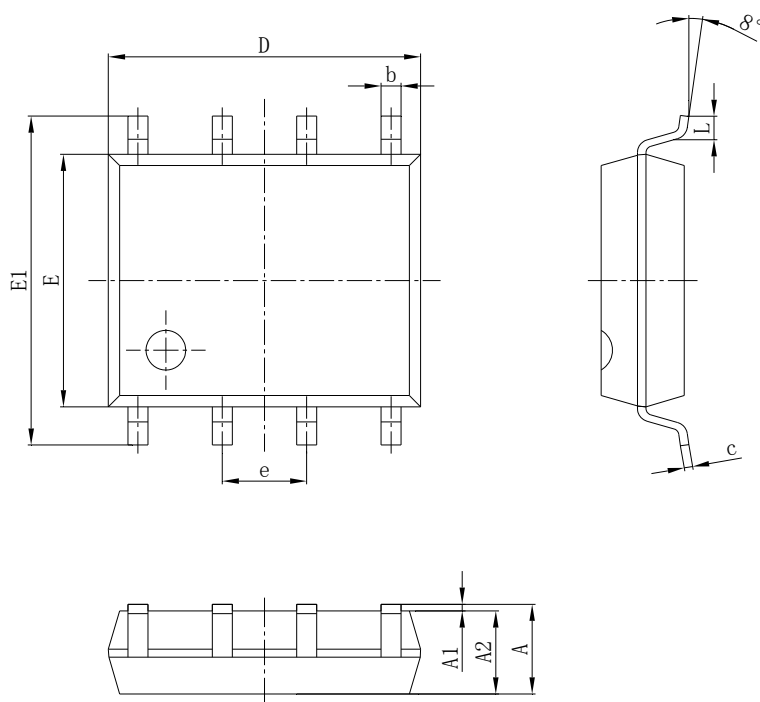


Figure 9: Maximum Effective Transient Thermal Impedance, Junction-to-Case



PACKAGE MECHANICAL DATA

SOP-8 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E1	5.800	6.200	0.228	0.244
E	3.800	4.000	0.150	0.157
e	1.270TYP		0.050TYP	
e1	4.500	4.700	0.177	0.185
L	0.400	1.270	0.016	0.050

Ordering information

Part number	Package	Marking	Packing	Quantity
ADM440P04A	SOP-8	440P04A	Tape&reel	4000pcs