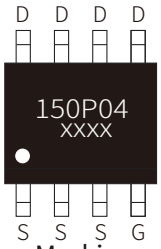
FEATURES

- High Density Cell Design For Low $R_{DS(On)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- High Saturation Current Capability
- ESD Protected

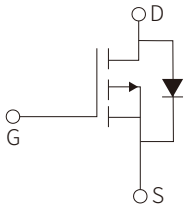
SOP-8



Marking

APPLICATION

- Direct logic-level interface: TTL/CMOS
- Drivers: relays, solenoids, lamps
- hammers,display, memories, etc.
- Battery operated systems
- Solid-state relays



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	±20	V
Maximum Drain Current - Continuous (Ta=25°C)	I_D	-10	A
Maximum Drain Current - Continuous (Ta=70°C)	I_D	-8	A
Power Dissipation for Single Operation (Ta=25°C)	P_D	1.7	W
Power Dissipation for Single Operation (Ta=70°C)	P_D	1.1	W
Thermal Resistance from Junction to Ambient (t≦10s)	$R_{\theta JA}$	40	°C/W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	75	°C/W
Maximum Junction-to-Lead	$R_{\theta JL}$	24	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	-40			V
Gate-body leakage current	I_{GSS}	V_{DS}=±20V,V_{DS}=0V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS}=-40V,V_{GS}=0V			-1.0	uA
		V_{DS}=-40V,V_{GS}=0V,T_J=55°C			-5.0	uA
Gate-source threshold voltage(2)	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.2	-1.6	-2.5	V
Drain-source on–state resistance(2)	$R_{DS(on)}$	V_{GS}=-10V,I_D=-10A		13.1	15	mΩ
		V_{GS}=-4.5V,I_D=-7A		18	21	mΩ
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		nC
Gate-Source Charge	Q_{gs}			7		nC
Gate-Drain Charge	Q_{gd}			8.6		nC
Gate Resistance	R_g	V_{GS}=0V,V_{DS}=0V,f=1MHz		8.5		Ω
Input Capacitance	C_{iss}	V_{GS}=0V,V_{DS}=-25V,f=1MHz		3300		pF
Output Capacitance	C_{oss}			135		pF
Reverse Transfer Capacitance	C_{rss}			177		pF
Turn-on Delay Time	$t_{d(ON)}$	V_{GS}=-10V,V_{DS}=-20V,R_L=2Ω,R_{GEN}=3Ω		9.4		ns
Turn-on Rise Time	t_r			20		ns
Turn-off Delay Time	$t_{d(OFF)}$			55		ns
Turn-off Fall Time	t_f			30		ns

PARAMETER CHARACTERISTIC CURVE

Figure1: On-Region Characteristics

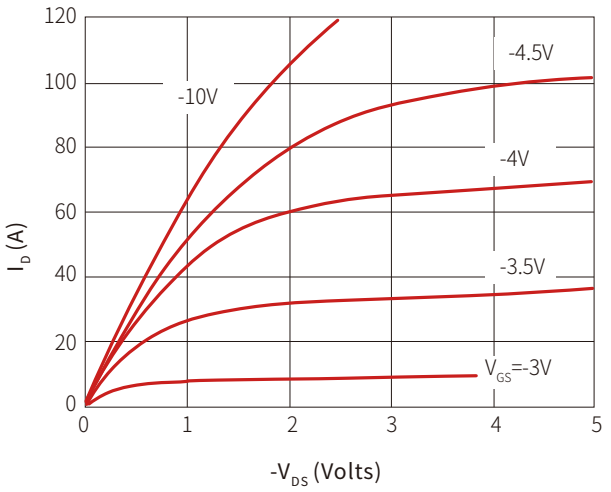


Figure2: Transfer Characteristics

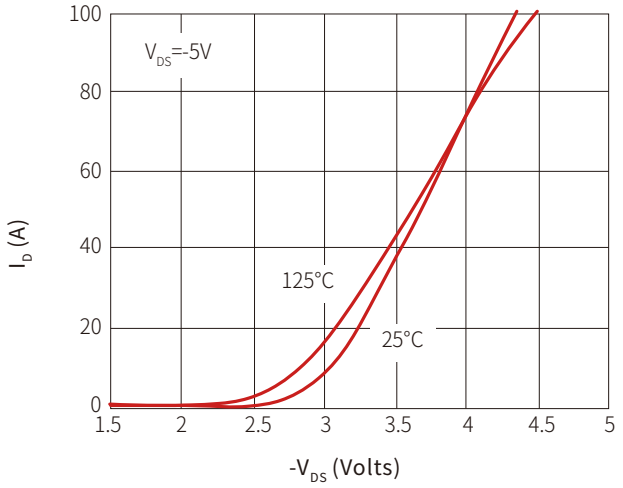


Figure3: On-Resistance vs. Drain Current and Gate Voltage

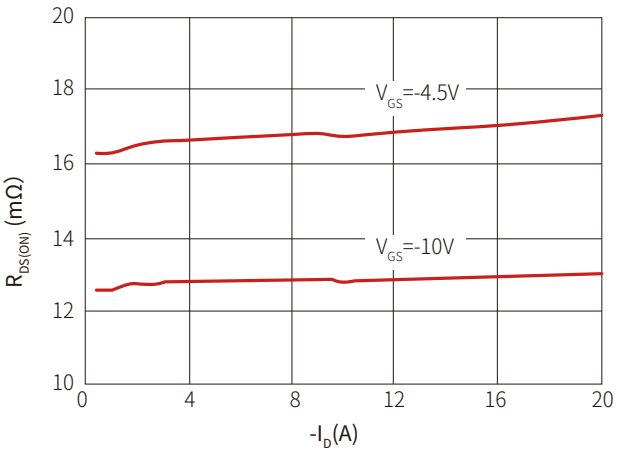


Figure4: On-Resistance vs. Junction Temperature

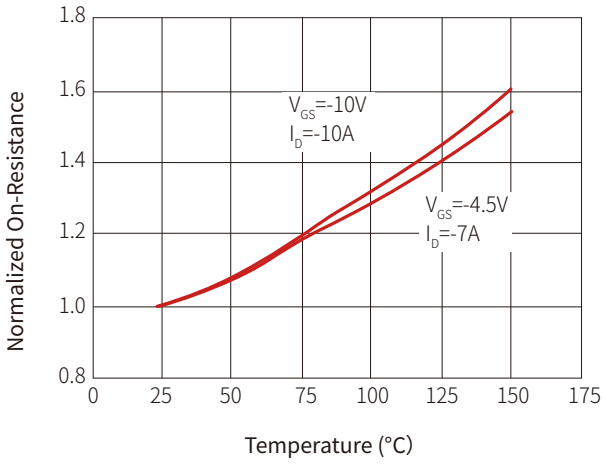


Figure 5: On-Resistance vs. Gate-Source Voltage

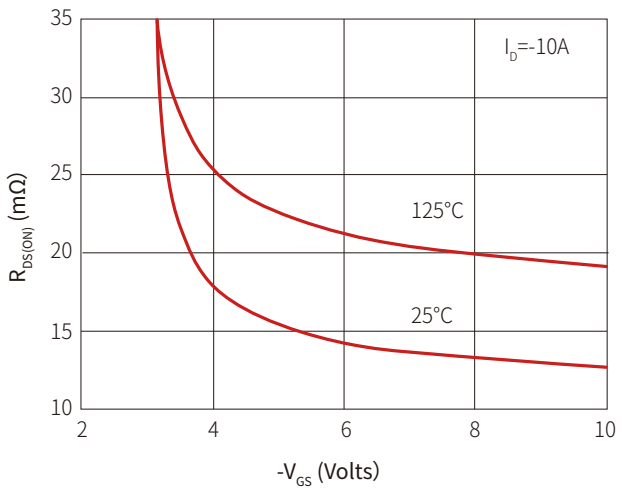


Figure 6: Body-Diode Characteristics

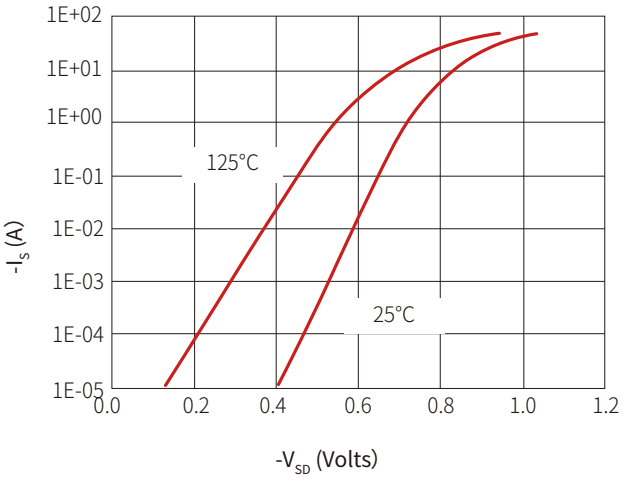


Figure 7: Gate-Charge Characteristics

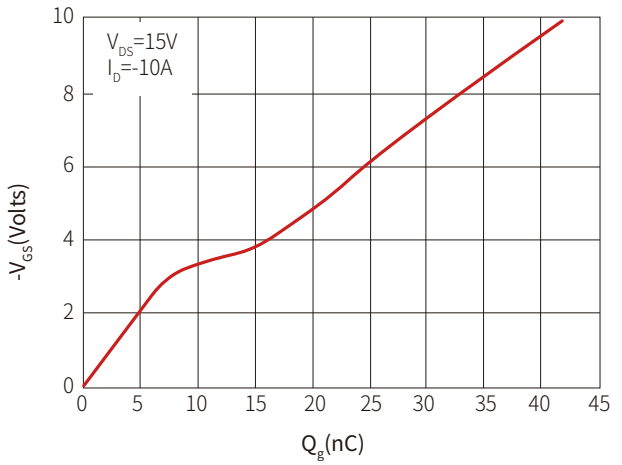


Figure 8: Capacitance Characteristics

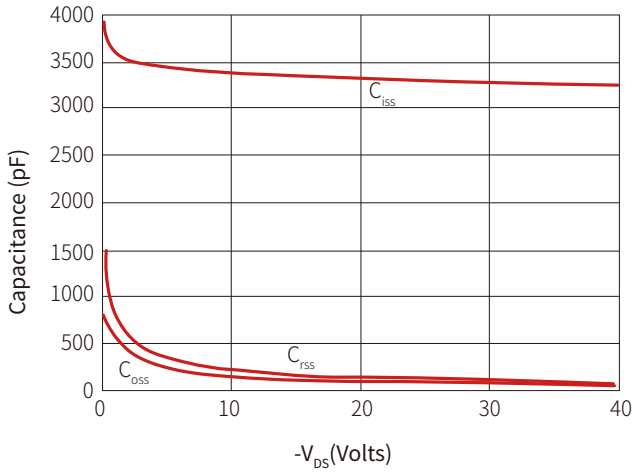


Figure 9: Maximum Forward Biased Safe Operating Area

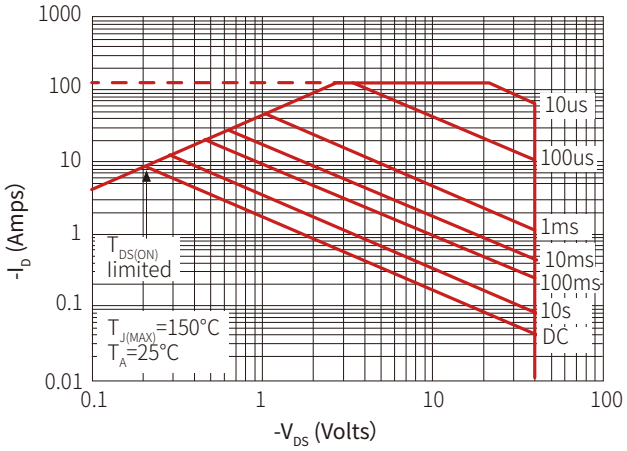
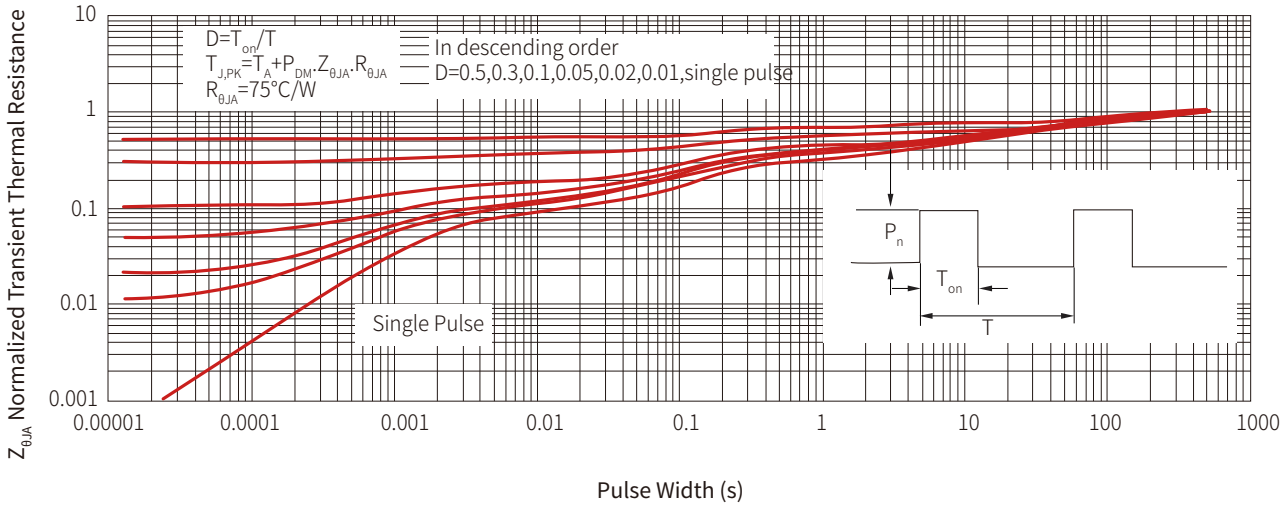
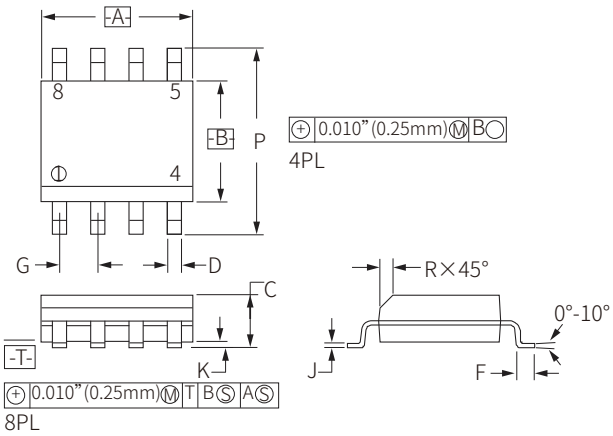


Figure 10: Normalized Maximum Transient Thermal Impedance

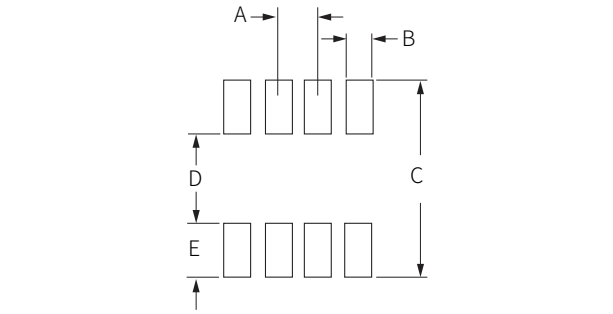


SOP-8 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.70	5.30	0.185	0.209
B	3.80	4.20	0.150	0.165
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27BSC		0.050BSC	
J	0.18	0.25	0.007	0.009
K	0.10	0.25	0.004	0.008
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	1.14	1.40	0.045	0.055
B	0.64	0.89	0.025	0.035
C	6.22	-	0.245	-
D	3.94	4.17	0.155	0.165
E	1.02	1.27	0.040	0.050

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPM8P10N04	SOP-8	4000PCS	13”

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