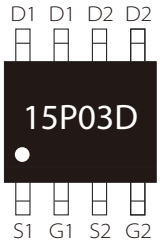
FEATURES

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

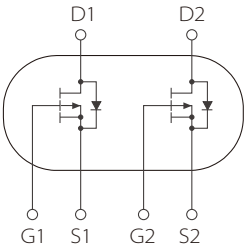
SOP-8



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(T_a=25℃)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	T_A=25℃	-30	V
Gate-Source Voltage	V_{GS}	T_A=25℃	±20	V
Drain Current (DC)	I_D*	T_A=25℃,V_{GS}=-10V	-10	A
		T_A=100℃,V_{GS}=-10V	-5.5	A
Drain Current (Pulsed)	I_{DM}**,***	T_A=25℃,V_{GS}=-10V	-34	V
Total Power Dissipation	P_{tot}*	T_A=25℃	2.2	W
Storage Temperature	T_{STG}		-55 to 150	℃
Junction Temperature	T_J		150	℃
Diode Forward Current	I_S	T_C=25℃	-10	A
Junction and Storage Temperature	$R_{\theta JA}$*		56.3	℃/W

Notes: * Surface Mounted on 1 in2 pad area, t ≤10 sec
** Pulse width≤300us, duty cycle≤2 %
*** limited by bonding wire

ELECTRICAL CHARACTERISTICS(T_a=25℃)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=-250μA	-30			V
Drain Leakage Curren	I_{DSS}	V_{DS}=-24V,V_{GS}=0V			-1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=-250μA	-1		-2	V
On-State Resistance	$R_{DS(on)}$[a]	V_{GS}=-10V,I_D=-5A		14.5	18	mΩ
		V_{GS}=-4.5V,I_D=-3A		23.5	28	
Diode Characteristics						
Diode Forward Voltage	V_{SD}[a]	V_{GS}=0V,I_{SD}=-5A			-1.3	V
Reverse Recovery Time	t_{rr}	I_{SD} = -5A, dI_{SD}/dt = 100 A/μs		12		ns
Reverse Recovery Charge	Q_{rr}			6.2		nC
Dynamic Characteristics[b]						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,F=1.0MHz		1953		pF
Output Capacitance	C_{oss}			175		
Reverse Transfer Capacitance	C_{rss}			146		
Turn–On Delay Time	$t_{d(on)}$	V_{DS}=-15V,R_L=3Ω V_{GEN}=-10V,R_G=3.9Ω,I_{DS} = -5 A		5.7		ns
Turn–On Rise Time	t_r			15		
Turn–Off Delay Time	$t_{d(off)}$			117		
Turn–Off Fall Time	t_f			40		
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-15V,I_{DS}=-5A		33		nC
Gate Source Charge	Q_{gs}			8.4		
Gate Drain Charge	Q_{gd}			3.7		

Notes: a : Pulse test ; pulse width≤300us, duty cycle≤2 %
b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

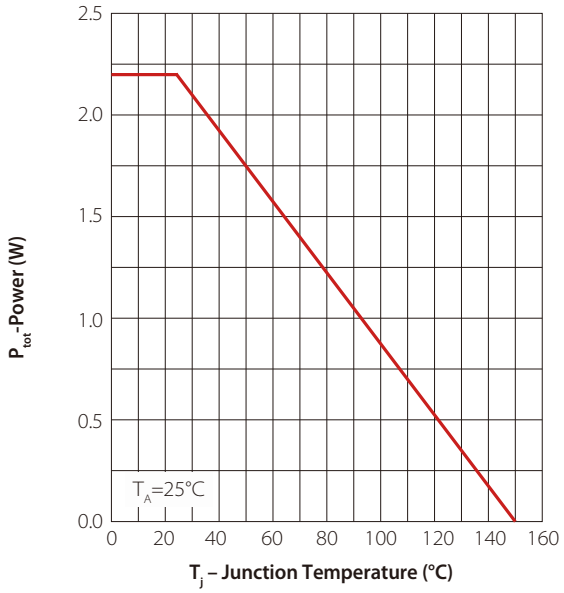


Figure2: Current Capability

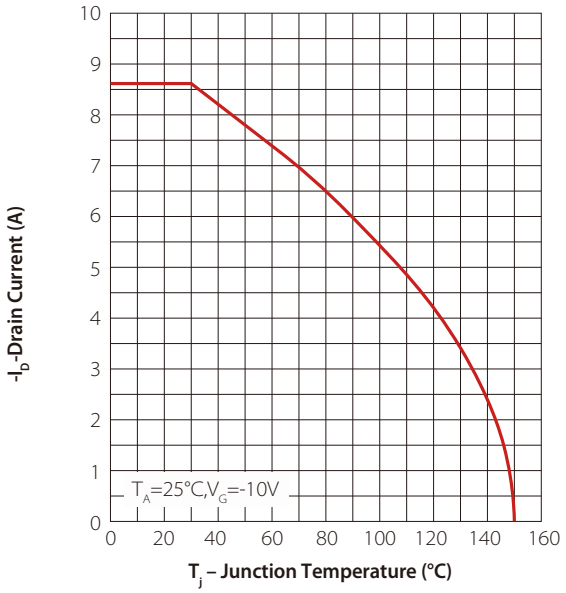


Figure3: Safe Operation Area

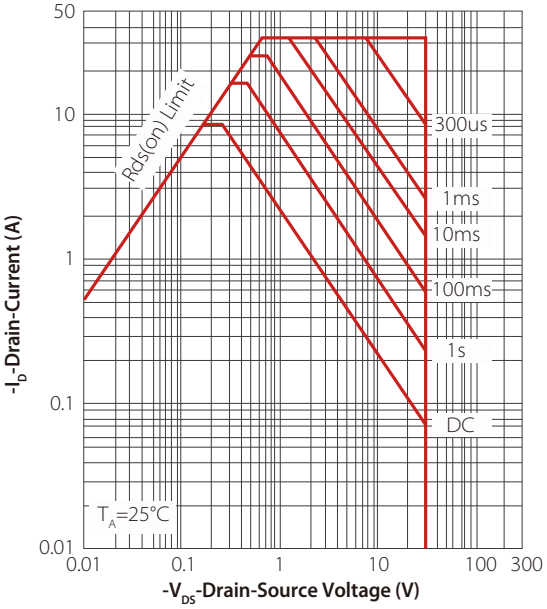


Figure 4: Transient Thermal Impedance

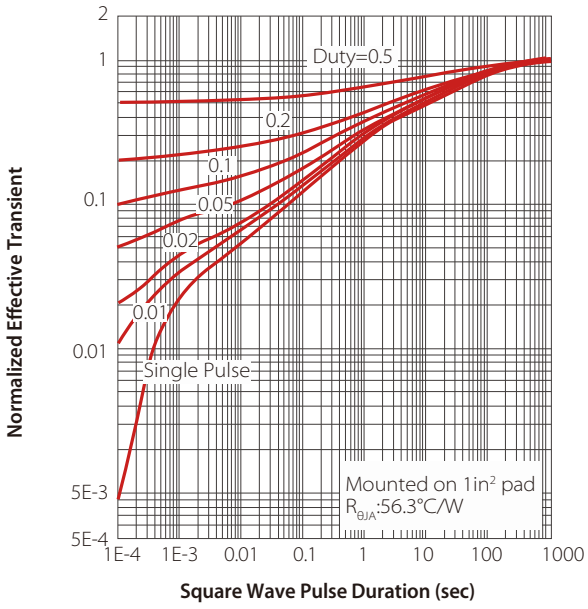


Figure 5:Output Characteristics

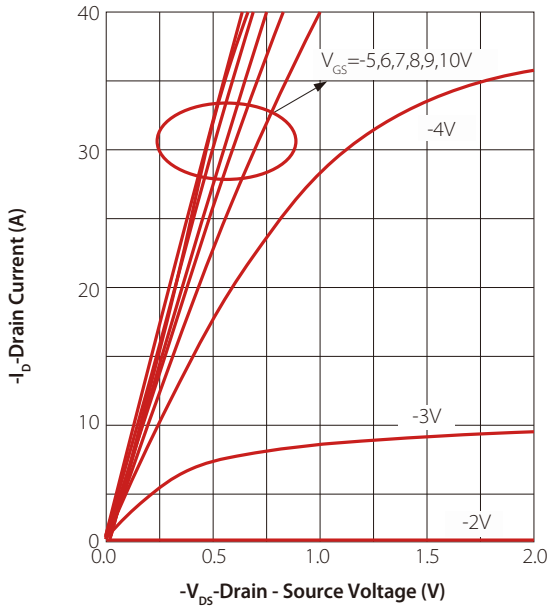


Figure 6: Drain-Source On Resistance

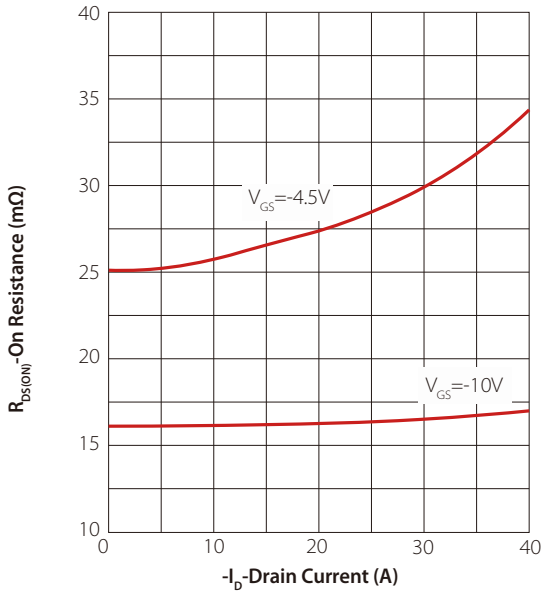


Figure 7:Transfer Characteristics

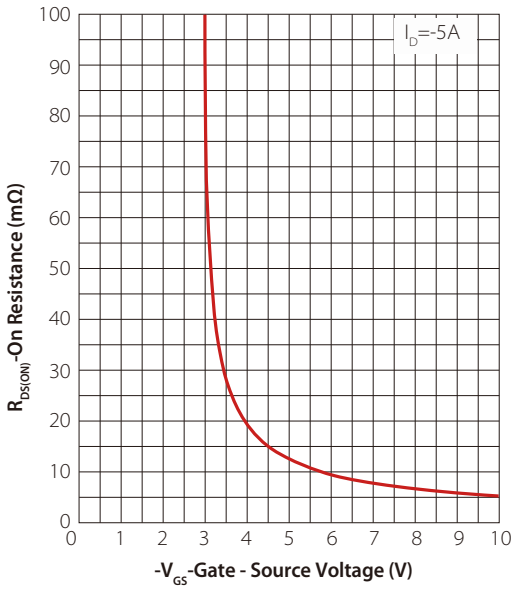


Figure 8: Gate Threshold Voltage

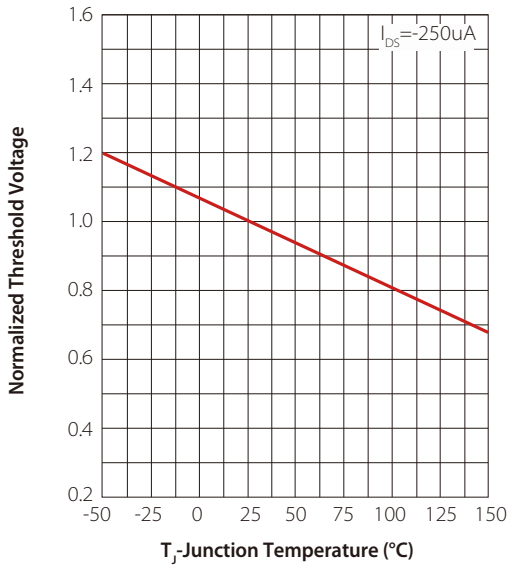


Figure 9:Normalized On Resistance

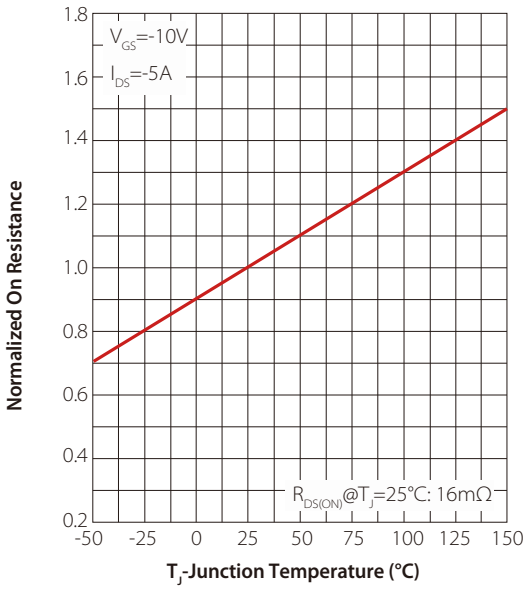


Figure 10: Diode Forward Current

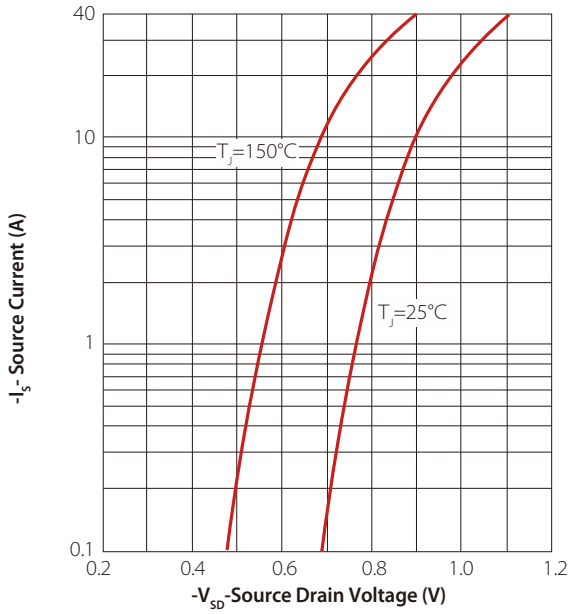


Figure 11:Capacitance

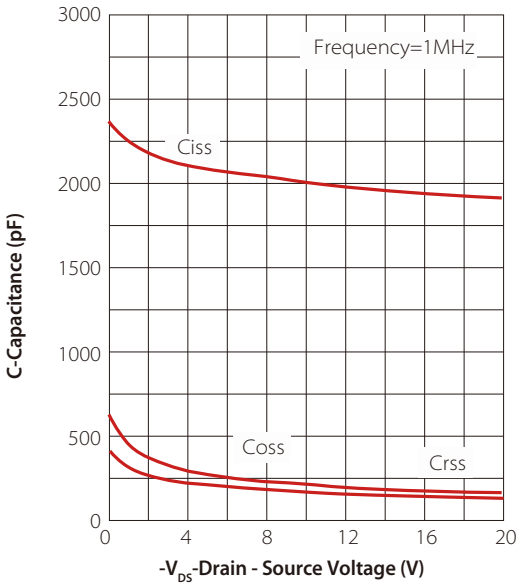
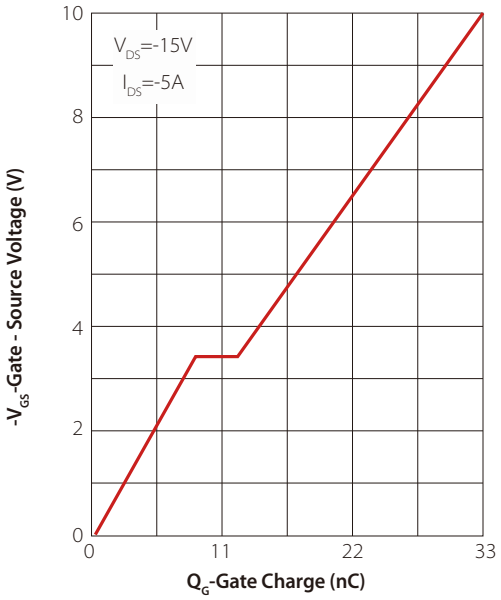
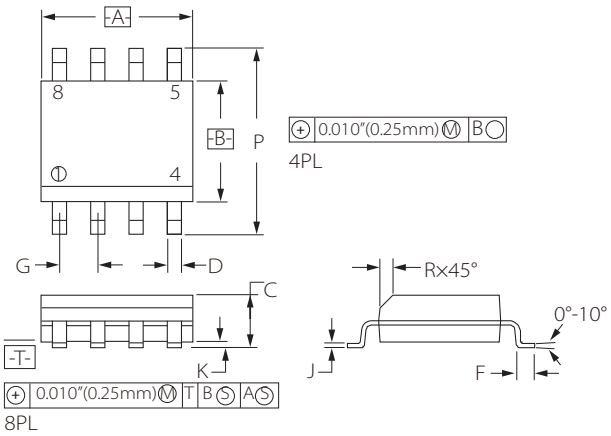


Figure 12: Gate Charge

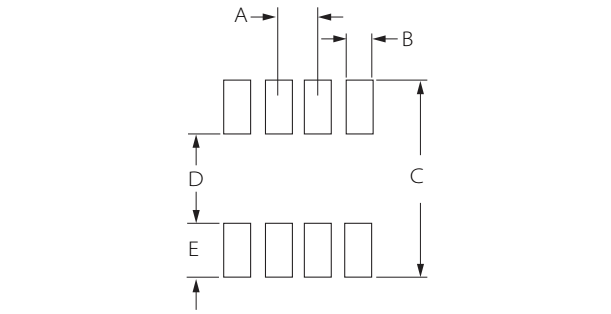


SOP-8 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
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
SPPM8P10N03	SOP-8	3000PCS	13″

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