

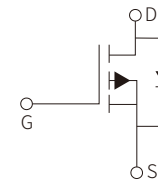
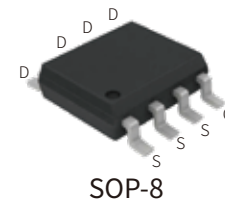
FEATURES

$V_{DS} = -40V$

$I_D = -20 A (V_{GS} = -10V)$

$R_{DS(ON)} < 14m\Omega (V_{GS} = -10V)$

$R_{DS(ON)} < 21m\Omega (V_{GS} = -4.5V)$



Schematic Symbol

APPLICATION

100% UIS Tested

100% Rg Tested

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
Continuous Drain Current ^a		I_D	-20	A
Pulsed Drain Current ^b		I_{DM}	-120	A
Power Dissipation ^a	$T_A = 25^\circ C$	P_D	17.2	W
	$T_A = 70^\circ C$		10.3	W
Gate-Source Voltage		V_{GS}	± 20	V
Thermal Resistance.Junction- to-Ambient ^a		$R_{\theta JA}$	75	$^\circ C/W$
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ C$

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-40			V
Gate-body leakage current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-40V, V_{GS}=0V$			-1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.2	-1.6	-2.2	V
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_{DS}=-20A$		11	14	m Ω
		$V_{GS}=-4.5V, I_{DS}=-10A$		16	21	m Ω
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-20A$			-1.2	V
Dynamic characteristics						
Input capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V, f=1MHz$		1774		pF
Output capacitance	C_{oss}			211		pF
Reverse transfer capacitance	C_{rss}			174		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD}=-20V, I_D=-10A$ $V_{GS}=-10V, R_{GEN}=2.5\Omega$		9.5		ns
Turn-on Rise Time	t_r			19.4		ns
Turn-Off Delay Time	$t_{d(off)}$			50		ns
Turn-off Fall yime	t_f			26		ns
Total Gate Charge	Q_g	$V_{DS}=-20V, I_D=-10A$ $V_{GS}=0 \text{ to } -10V$		33		nC
Gate-Source Charge	Q_{gs}			6		nC
Gate-Drain Charge	Q_{gd}			7		nC
Body Diode Reverse Recovery Time	t_{rr}	$I_F=-10A, dI/dt=100A/\mu s$		30		ns
Body Diode Reverse Recovery Charge	Q_{rr}			38		nC

a: The value of R qJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA = 25°C. The value in any given application depends on the user's specific board design.

b: Repetitive rating, pulse width limited by junction temperature.

PARAMETER CHARACTERISTIC CURVE

Fig 1: On-Region Characteristics

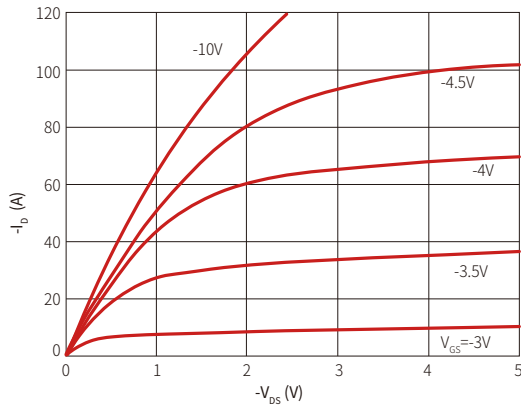


Figure 2: Transfer Characteristics

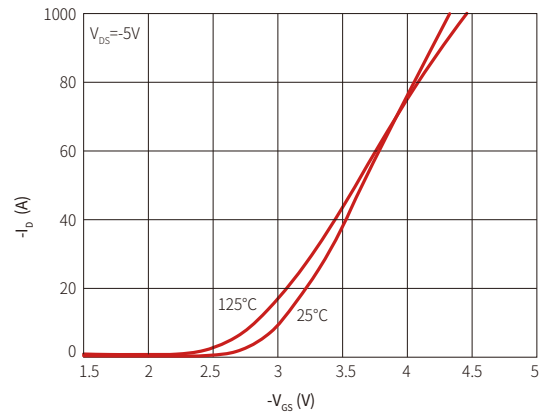


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

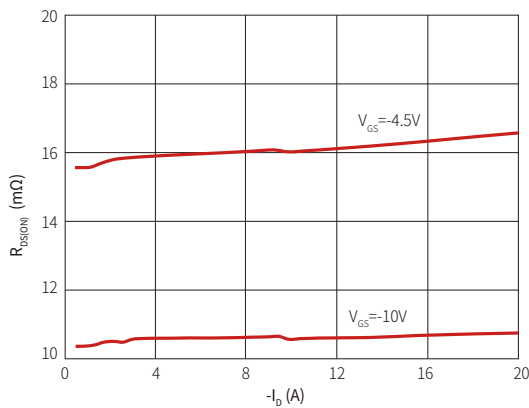


Figure 4: On-Resistance vs. Junction Temperature

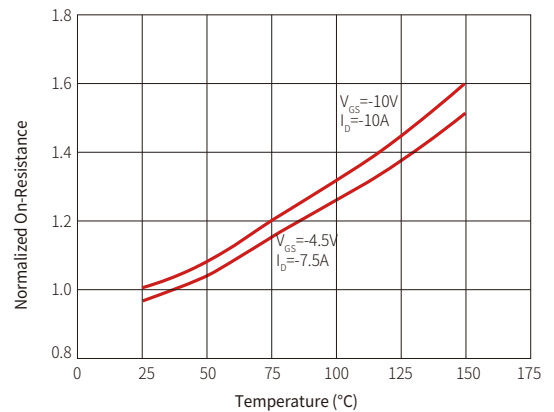


Figure 5: On-Resistance vs. Gate-Source Voltage

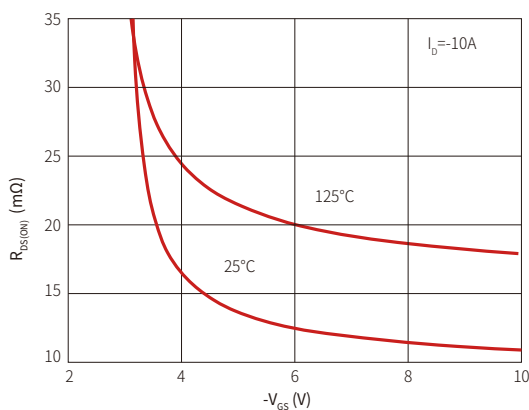


Figure 6: Body-Diode Characteristics

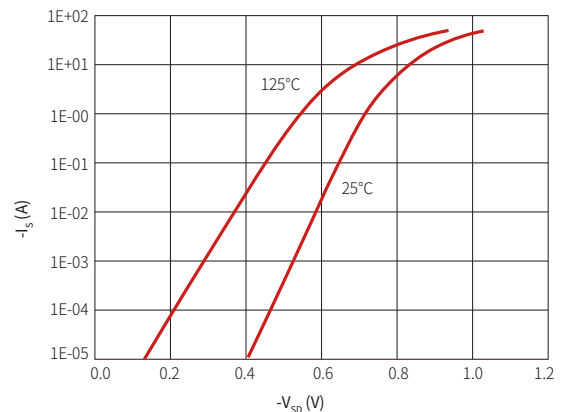
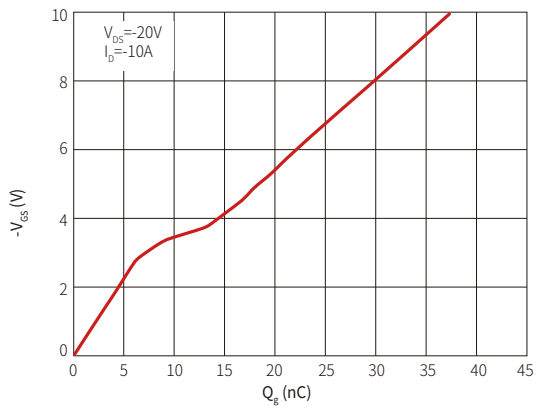
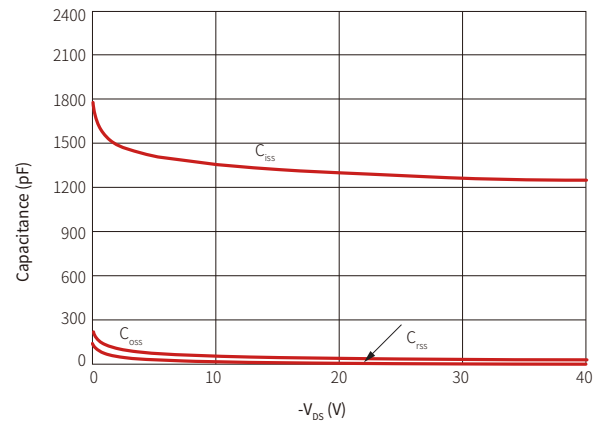
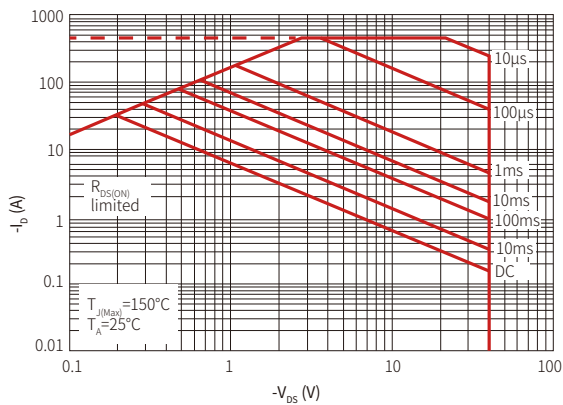
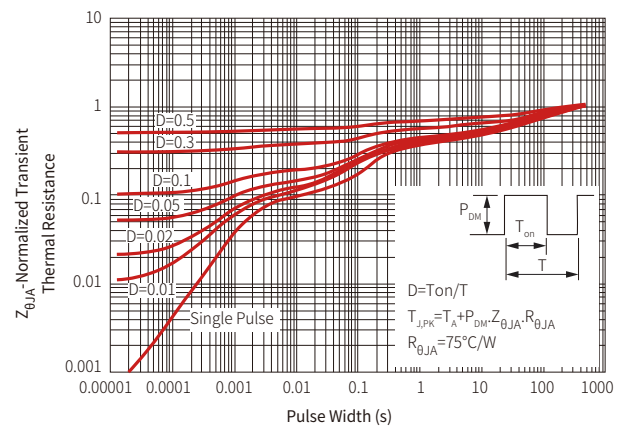
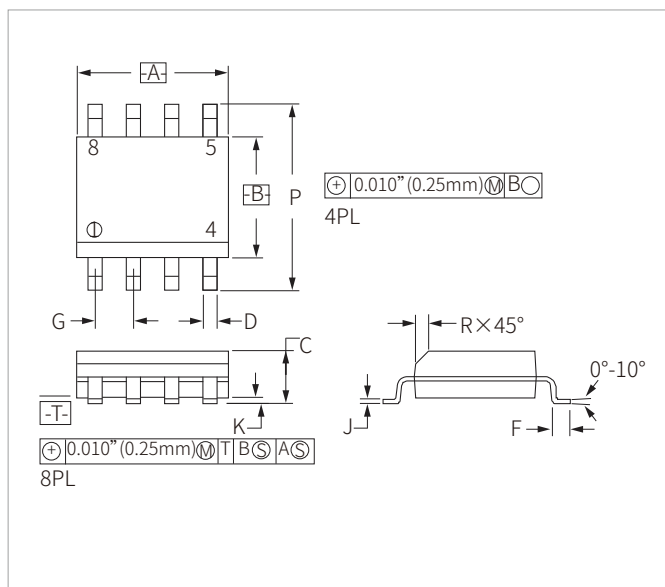


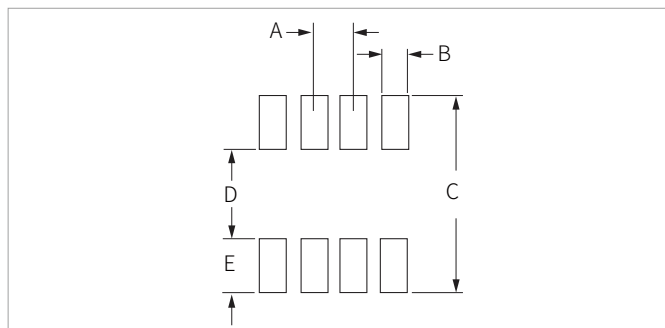
Fig 7: Gate-Charge Characteristics

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	Marking	QTY/Reel	Reel Size
SPM20P04PE	SOP-8	 20P04 XXXX	3000PCS	7"

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By QR Code

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