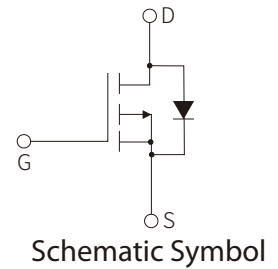
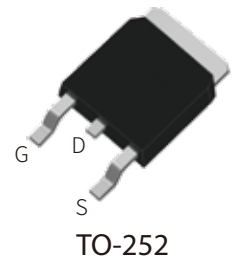


FEATURES

- | $V_{DS} = -60V$, $I_D = -40A$
- | $R_{DS(ON)}$ (TYP) = 24m Ω @ $V_{GS} = -10V$
- | $R_{DS(ON)}$ (TYP) = 30.4m Ω @ $V_{GS} = -4.5V$
- | Very Low On- resistance $R_{DS(ON)}$
- | Low Crss
- | Fast switching
- | 100% avalanche tested



APPLICATION

- | PWM applications
- | Load switch
- | Power management

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_{DSS}	-60	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ C$	I_D	-40	A
	$T_C = 100^\circ C$		-34	
Pulsed Drain Current ¹		I_{DM}	-191	A
Single Pulse Avalanche Energy ²		E_{AS}	196	mJ
Total Power Dissipation $T_C = 25^\circ C$		P_D	79	W
Thermal Resistance from Junction-to-Case		$R_{\theta JC}$	1.9	$^\circ C/W$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ C$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _D =-250μA	-60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V,V _{GS} =0V			-1	μA
Gate-body Leakage current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA	-1.0	-1.8	-2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V,I _D =-20A		24	29	mΩ
		V _{GS} =-4.5V,I _D =-13A		30.4	39	mΩ
Forward Transconductance	g _{fs}	V _{DS} =-5V,I _D =-20A		35		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-25V,V _{GS} =0V f=1.0 MHz		4026		pF
Output Capacitance	C _{oss}			134		pF
Reverse Transfer Capacitance	C _{rss}			98		pF
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DS} = -30V, V _{GS} = - 10V, R _G =3.0Ω, R _L =-1.5Ω T _J =25°C		12.2		nS
Turn-On Rise Time	t _r			10		nS
Turn-Off Delay Time	t _{d(off)}			64		nS
Turn-Off Fall Time	t _f			14		nS
Total Gate Charge	Q _g	V _{DS} =-30V,V _{GS} =-10V,I _D =-26A		68		nC
Gate- Source Charge	Q _{gs}			10.5		nC
Gate- Drain Charge	Q _{gd}			13		nC
Drain-Source Body Diode Characteristics						
Body Diode Reverse Recovery Time	t _{rr}	I _F = -26A,dI/dt= 100A/μs		26		ns
Body Diode Reverse Recovery Charge	Q _{rr}			29		nC
Diode Forward Voltage	V _{SD}	I _{SD} = -20A, V _{GS} =0V,T _J = 25°C			-1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				-40	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25°C, V_{DD}=15V, V_G=10V, R_G=25Ω, L=0.5mH
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

PARAMETER CHARACTERISTIC CURVE

Figure1 : Output Characteristics

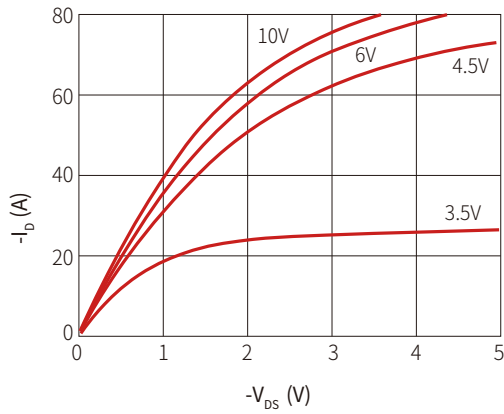


Figure2 : Transfer Characteristics

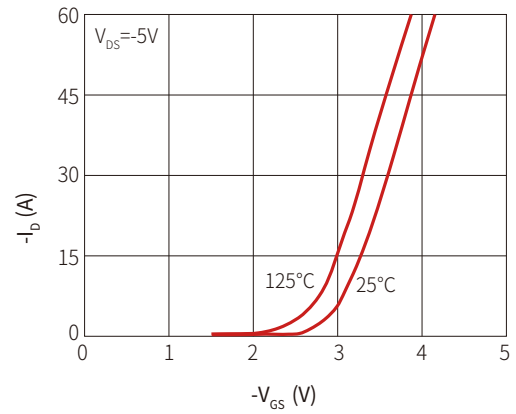


Figure3 : Power Dissipation

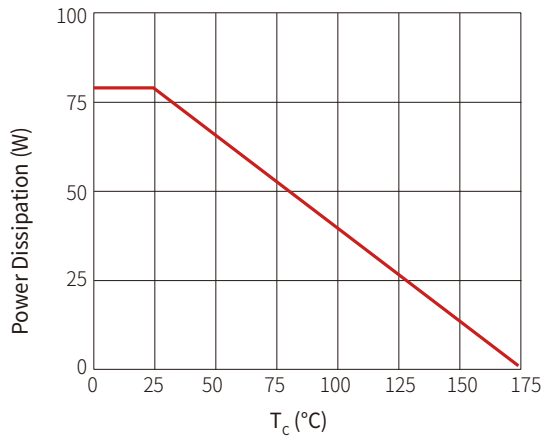


Figure4 : Drain Current

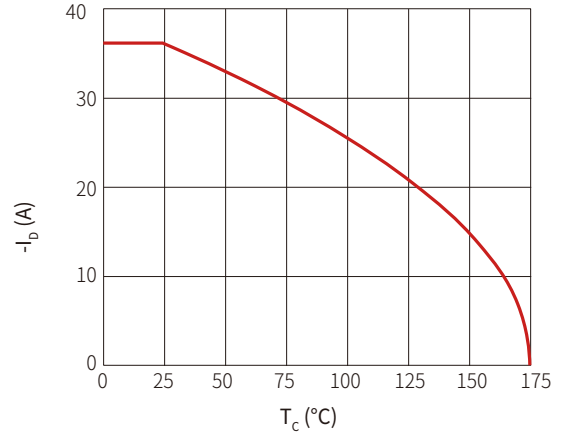


Figure5 : BV_{dss} vs Junction Temperature

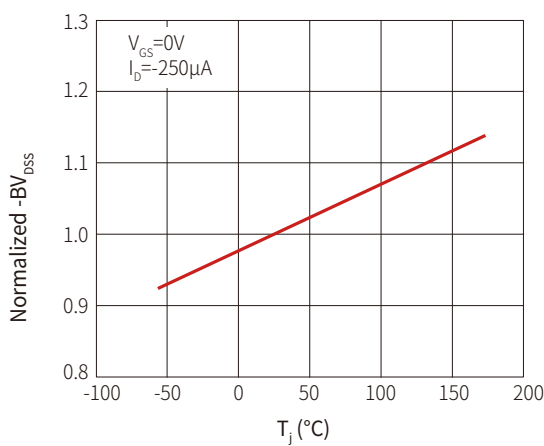


Figure6 : $R_{ds(on)}$ vs Junction Temperature

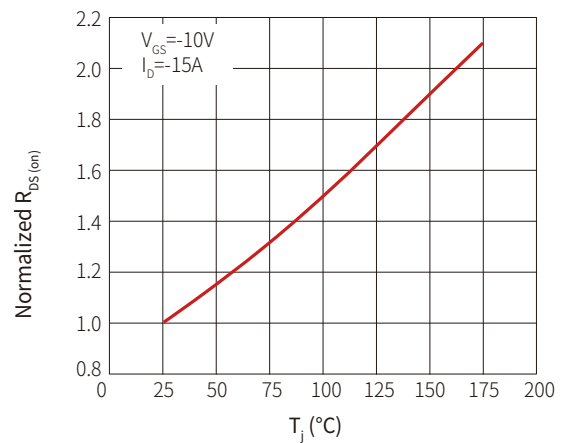
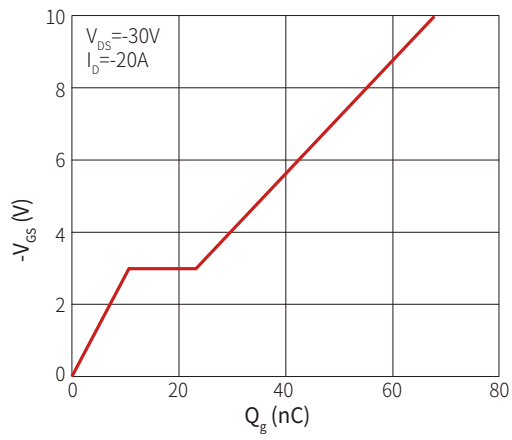
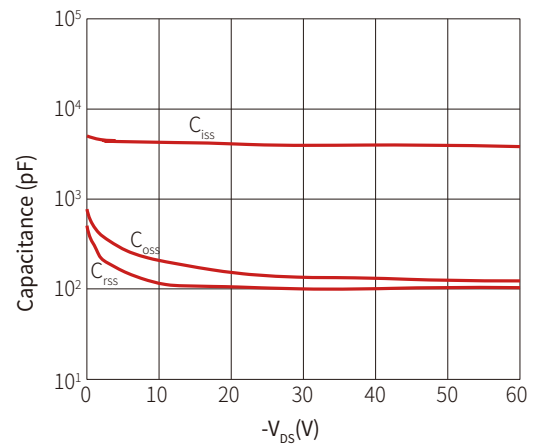
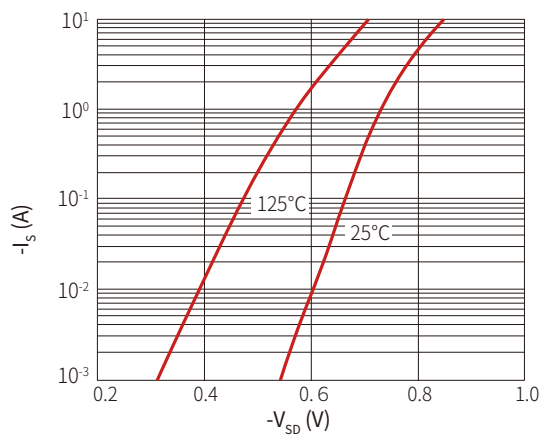
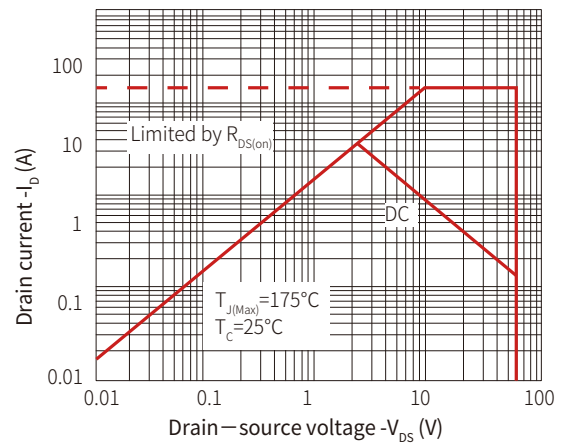
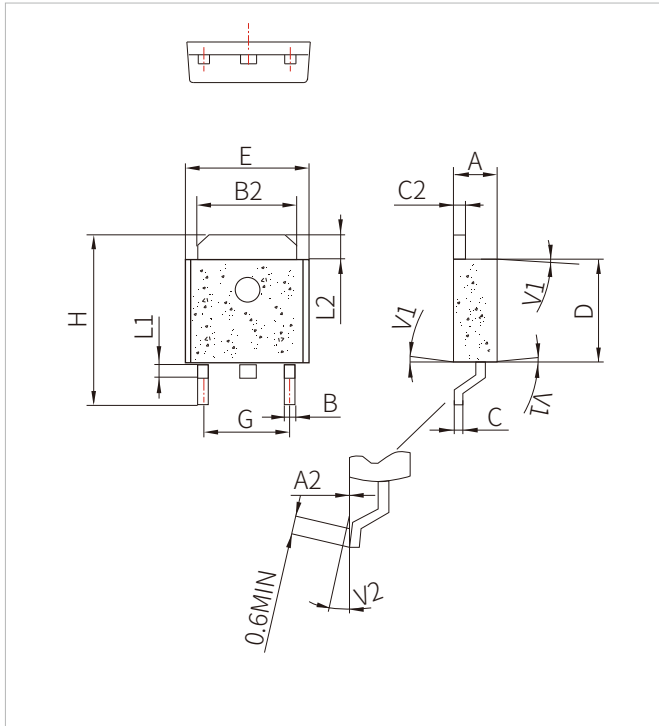


Figure7 : Gate Charge Wave forms

Figure8 : Capacitance

Figure9 : Body-Diode Characteristics

Figure10 : Maximum Safe Operating Area


TO-252 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.80	0.252		0.268
G	4.40		4.70	0.173	0.1	0.185
H	9.35		10.7	0.368		0.421
L1	1.30		1.70	0.051	0.143	0.067
L2	1.37		1.50	0.054		0.059
V1		4°			0.130	
V2	0°		8°	0°		8°

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	Reel Size
SPM40P06D	TO-252	40P06 XXXX	2500PCS	13"

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