

CURRENT 35 Ampere
VOLTAGE RANG 30 Volts

30V P-Channel MOSFET

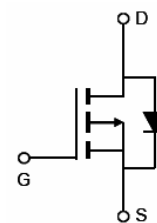
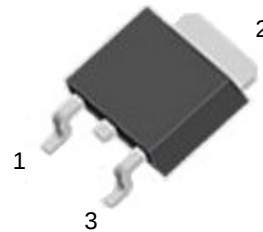
ASE35P03

30V P-Channel MOSFET

Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 48nC (Typ.).
- ☐ BVDSS=-30V, ID=-35A
- ☐ R_{DS(on)} : 0.012Ω (Max) @V_G=-10V
- ☐ 100% Avalanche Tested

TO-252



- 1. Gate (G)
- 2. Drain (D)
- 3. Source (S)

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DSS}	-30	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current-Continuous	I _D	-35	A
Drain Current-Pulsed ^(Note 1)	I _{DM}	-80	A
Maximum Power Dissipation	P _D	53	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 150	°C

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient ^(Note 2)	R _{θJA}	2.36	°C/W
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Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-30	-33	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GSS}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-15A	-	8.5	12	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-15A	30	-	-	S
Dynamic Characteristics ^(Note4)						
Input Capacitance	C _{ISS}	V _{DS} =-15V, V _{GS} =0V, F=1.0MHz	-	2900	-	PF
Output Capacitance	C _{OSS}		-	410	-	PF
Reverse Transfer Capacitance	C _{RSS}		-	280	-	PF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-15V, I _D =-10A, V _{GS} =-10V, R _{GEN} =3Ω	-	15	-	nS
Turn-on Rise Time	t _r		-	11	-	nS
Turn-Off Delay Time	t _{d(off)}		-	44	-	nS
Turn-Off Fall Time	t _f		-	21	-	nS
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-10A, V _{GS} =-10V	-	48	-	nC
Gate-Source Charge	Q _{gs}		-	12	-	nC
Gate-Drain Charge	Q _{gd}		-	14	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =-2A	-	-	-1.2	V

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

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Typical Characteristics

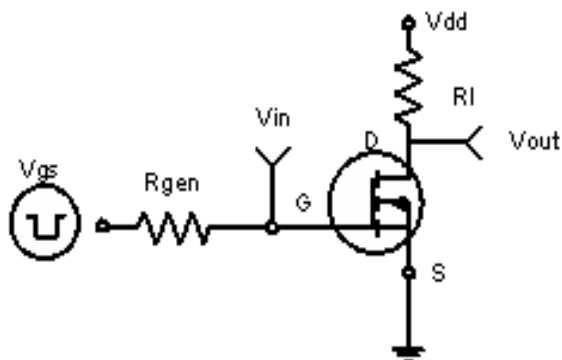


Figure 1 Switching Test Circuit

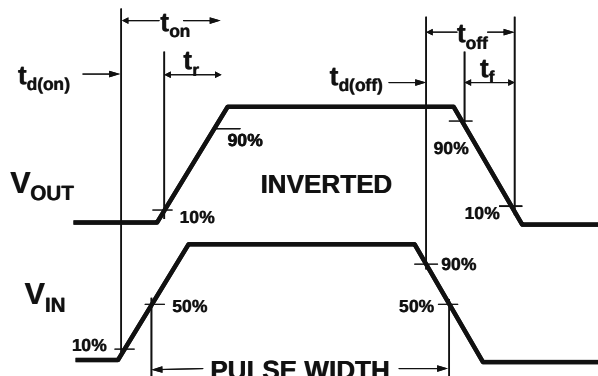


Figure 2 Switching Waveforms

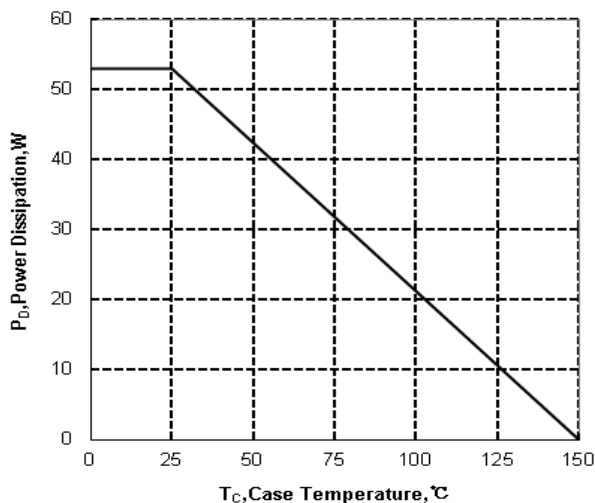


Figure 3 Power Dissipation

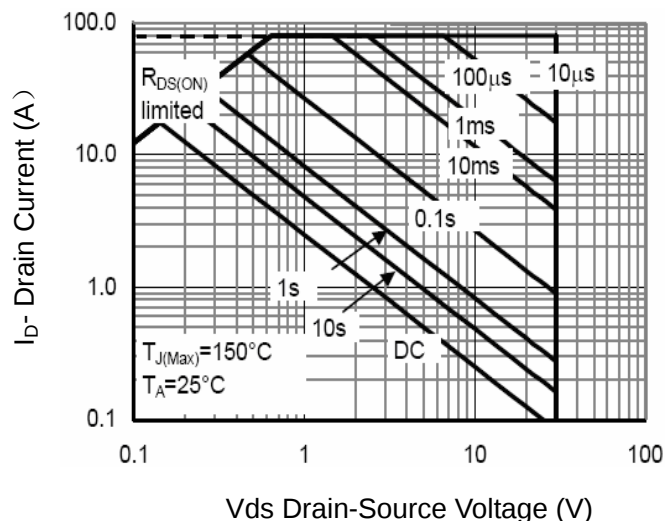


Figure 4 Safe Operation Area

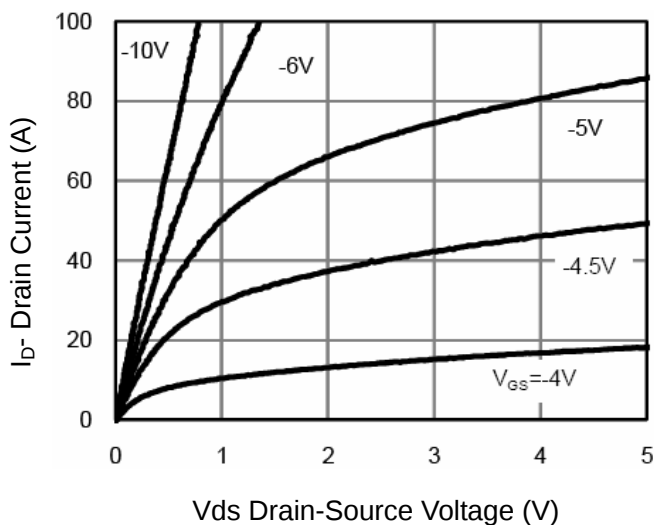


Figure 5 Output Characteristics

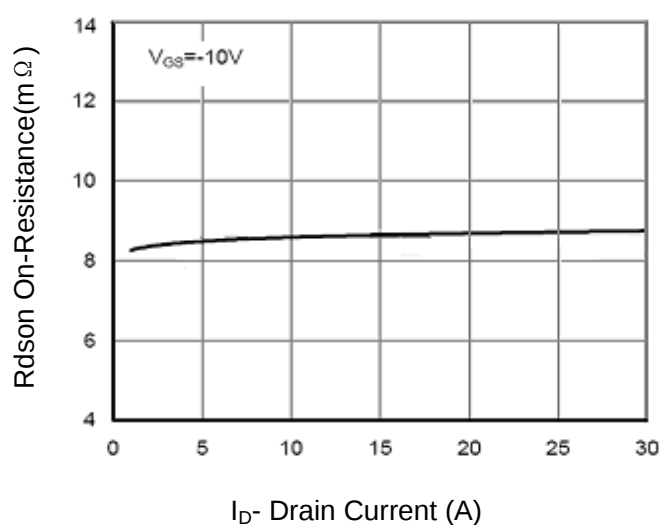
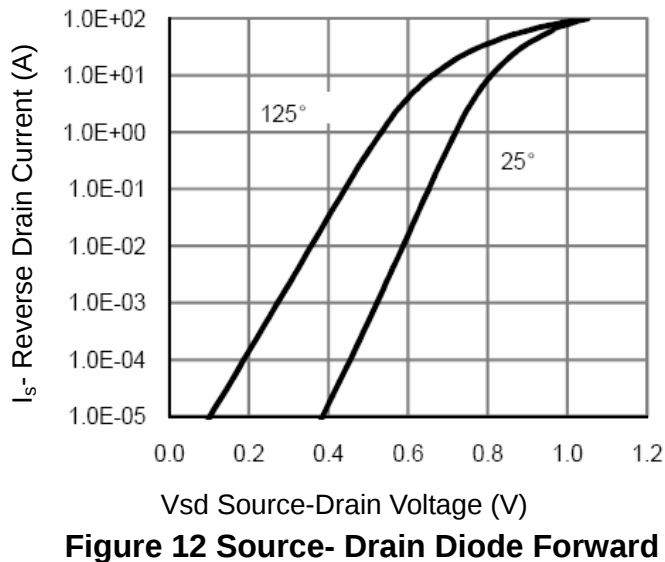
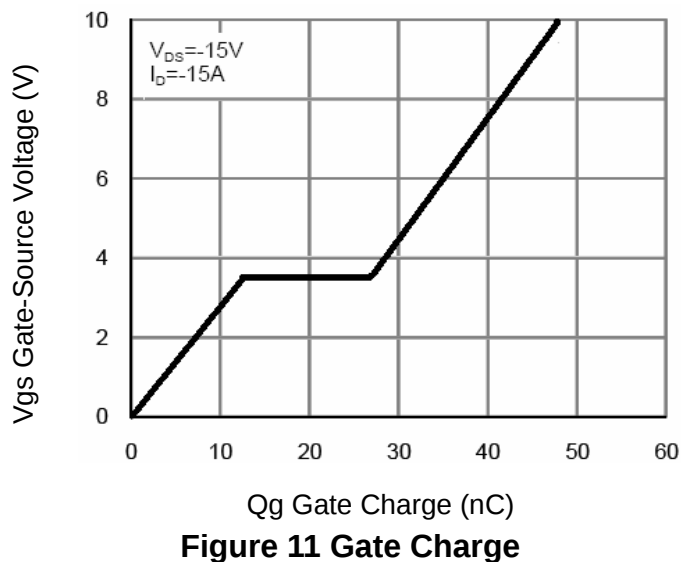
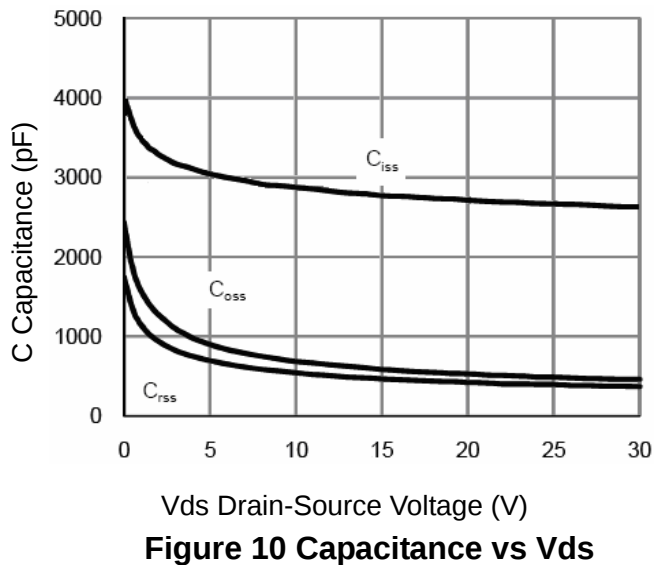
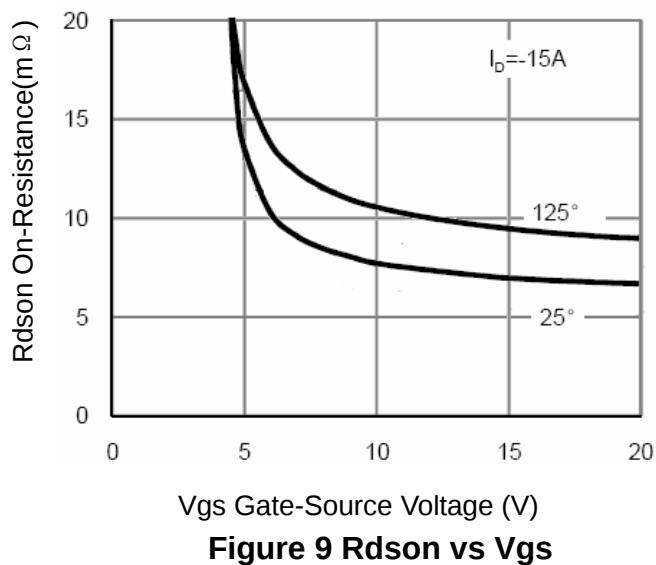
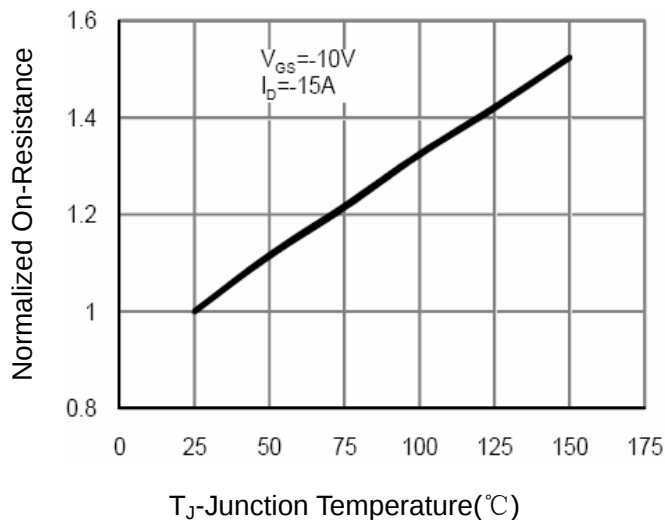
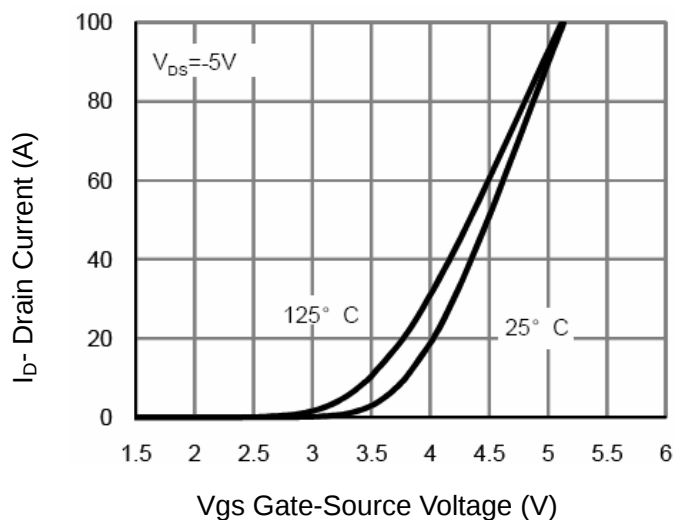


Figure 6 Drain-Source On-Resistance

Typical Characteristics (Continued)



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Typical Characteristics (Continued)

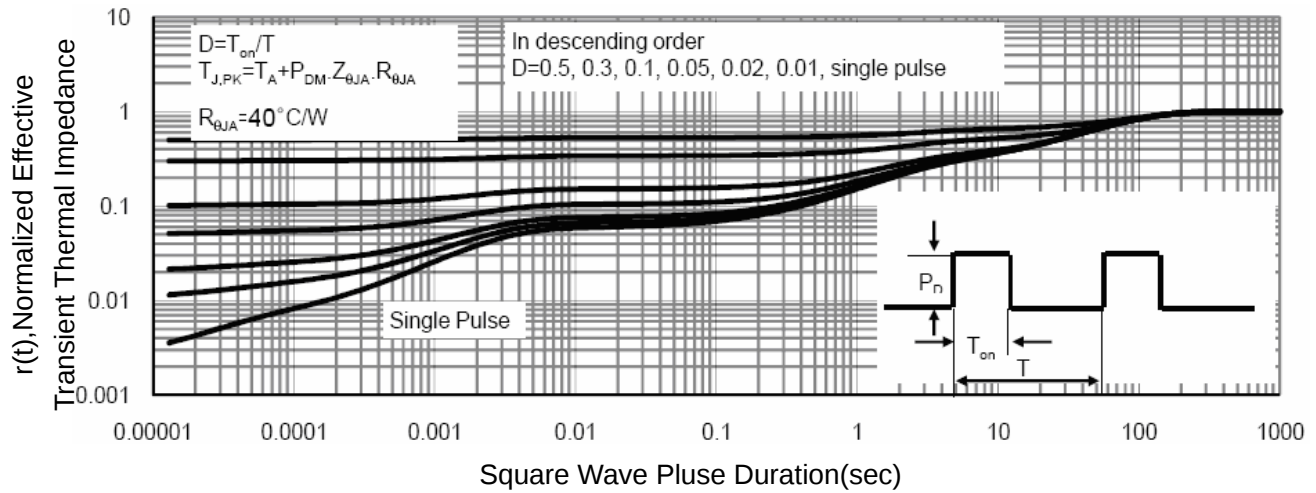


Figure 13 Normalized Maximum Transient Thermal Impedance

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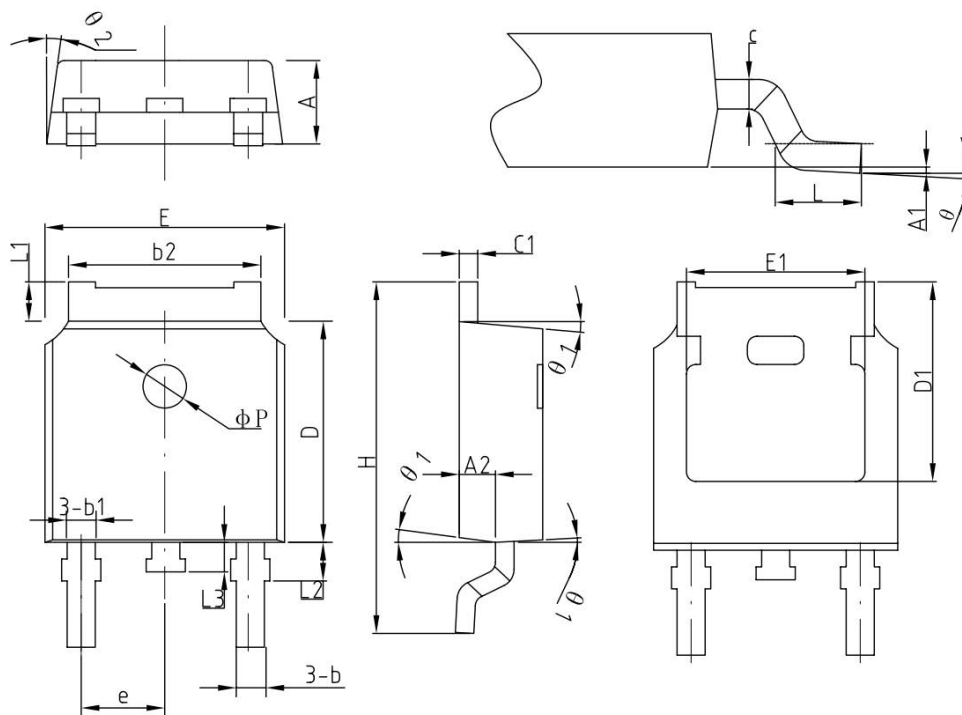
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Package Dimension

TO-252

Units: mm



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.2	2.30	2.38
A1	0	—	0.10
A2	0.90	1.01	1.10
b	0.71	0.76	0.86
b1		0.76	
b2	5.13	5.33	5.46
c	0.47	0.50	0.60
c1	0.47	0.50	0.60
D	6.0	6.10	6.20
D1	—	5.30	—
E	6.50	6.60	6.70
E1	—	4.80	—
e	2.286BSC		
H	9.70	10.10	10.40
L	1.40	1.50	1.70
L1	0.90	—	1.25
L2		1.05	
L3		0.8	
ΦP		1.2	
θ	0°	—	8°
θ 1	5°	7°	9°
θ 2	5°	7°	9°