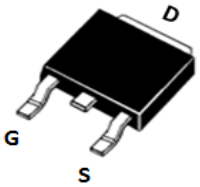
-60V P-Channel Power MOSFET

DESCRIPTION：

·P-Channel Enhancement Mode - Logic Level
·AEC-Q101 Qualified, PPAP Capable
·175°C Operating Temperature
·100% ΔVDS & UIS & Rg Tested

V_{DS}	-60V
I_D	-75A
$R_{DS(ON)_Typ.}$ @V_{GS}=-10V	7.6mΩ



TO-252

TYPICAL APPLICATIONS：

·Green Molding Compound
·Moisture Sensitivity: Level 1 per J-STD-020
·UL Flammability Classification Rating 94V-0

MAXIMUM RATINGS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-60	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current (1) T_C = 25℃ T_C = 100℃	I_D	 -75 -53	A
Pulsed Drain Current, tp<10us(2)	I_{DM}	-301	A
Single Pulsed Avalanche Energy(3)	E_{AS}	410	mJ
Single Pulse Avalanche Current (L= 0.1mH)	I_{AS}	-47	A
Power dissipation T_C = 25℃ T_C = 100℃	P_D	 100 50	mW
Junction & Storage temperature Range	T_J, T_{STG}	-55~+175	℃
Thermal Resistance, Junction to Ambient Thermal Resistance, Junction to Case	$R_{\theta JA}$ $R_{\theta JC}$	38 1.5	℃/W

Notes： 1. This current is chip limited, which is calculated based on Rthjc.
2. This current is calculated on single pulse with 10μs Pulse.
3. Defined by design, not subject to production test, E_{AS} condition: T_J=25°C, V_{DD}= -30V, V_{GS}= -10V, L=1.0mH.

ELECTRICAL CHARATERISTICS (at T_J = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = 250uA	$V_{(BR)DSS}$	-60			V
Zero Gate Voltage Drain Current VDS = -60 V, VGS = 0 V, T_J = 25 °C VDS = -60 V, VGS = 0 V, T_J = 125 °C	I_{DSS}			-1 -100	uA
Gate-Source Leakage Current VGS = ±20V, VDS = 0V	I_{GSS}			±100	nA
Gate-Source threshold voltage VDS = VGS, ID = -250uA	$V_{GS(th)}$	-1.2	-1.8	-2.5	V
Drain-Source On-State Resistance VGS = -10V, ID = -20A VGS = -4.5V, ID = -15A	$R_{DS(on)}$		7.6 10.0	10.0 13.0	mΩ
Forward Transconductance VDS = -5.0V, ID = -20A	g_{fs}		42		S
Diodes Forward Voltage IS = -2.0A, VGS = 0V	V_{SD}		-0.7	-1.2	V
Input capacitance f=1MHz, VDS=-30 V, VGS=0 V	C_{iss}		3559	4627	pF
Output capacitance f=1MHz, VDS=-30 V, VGS=0 V	C_{oss}		912	1186	pF
Reverse transfer capacitance f=1MHz, VDS=-30 V, VGS=0 V	C_{rss}		36	72	pF
Gate Resistance VGS = 0V, VDS = 0V, f = 1MHz	Rg		4.9		Ω
Turn-on delay time VDD= -30V, VGS= -10V, ID=-20A, R_{GEN}=3.0Ω	td (ON)		5.0		ns
Rise time VDD= -30V, VGS= -10V, ID=-20A, R_{GEN}=3.0Ω	tr		12		ns
Turn-off delay time VDD= -30V, VGS= -10V, ID=-20A, R_{GEN}=3.0Ω	td (OFF)		67		ns
Fall time VDD= -30V, VGS= -10V, ID=-20A, R_{GEN}=3.0Ω	tf		23		ns
Total Gate Charge VDS =-30V, ID =-20A, VGS =-10V VDS =-30V, ID =-20A, VGS =-4.5V	Qg		47 22	61 28	nC
Gate-Source Charge VDS =-30V, ID =-20A, VGS =-10V	Qgs		10.0	15	nC
Gate-Drain("Miller") Charge VDS =-30V, ID =-20A, VGS =-10V	Qgd		5.0	7	nC
Gate Plateau Voltage VDS =-30V, ID =-20A, VGS =-10V	$V_{plateau}$		-3.0		V
Reverse Recovery Time I_S=-20A,di/dt=100A/μs, T_J=25℃	Trr		43		nS
Reverse Recovery Charge I_S=-20A,di/dt=100A/μs, T_J=25℃	Qrr		59		nC
Maximum Continuous Drain to Source Diode Forward Current	I_S			-75	A

Typical Performance Characteristics

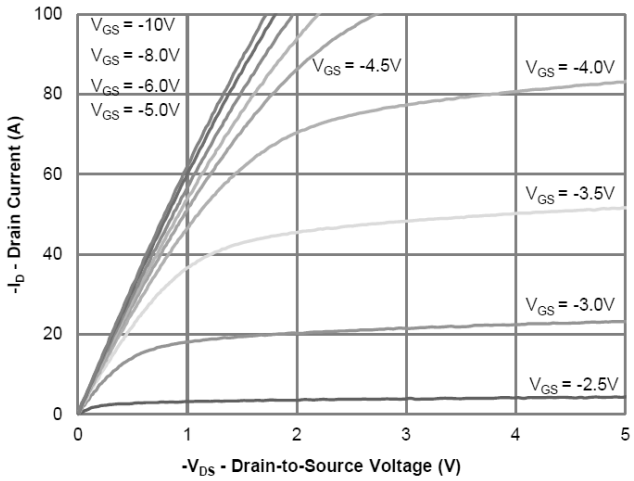


Figure 1. Output Characteristics

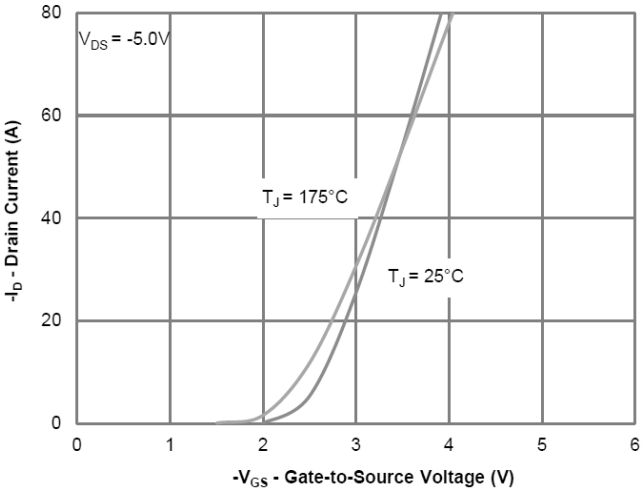


Figure 2. Transfer Characteristics

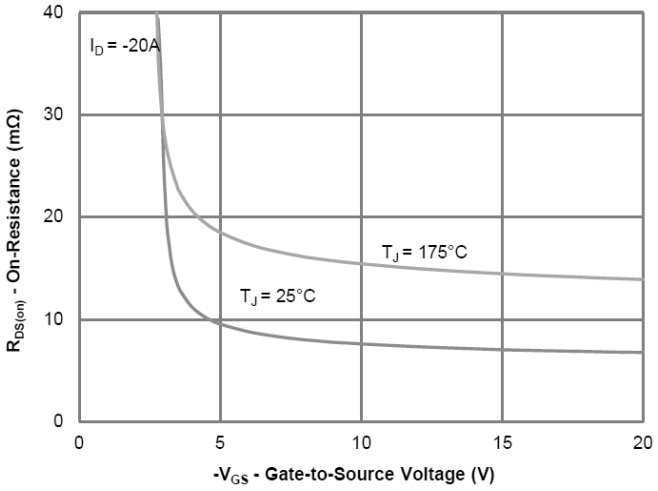


Figure 3. On-Resistance vs. Gate-Source Voltage

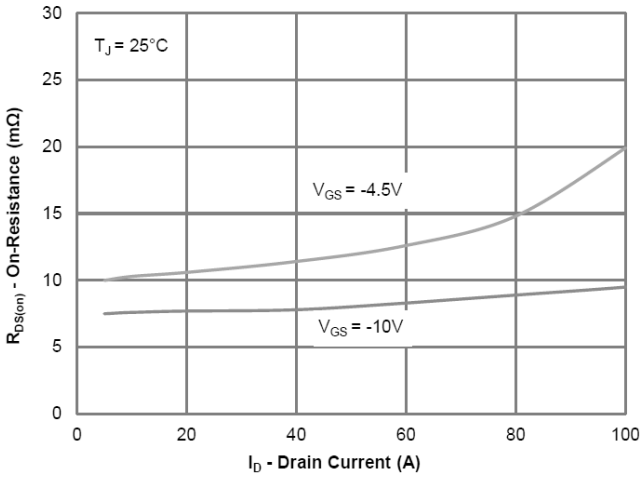


Figure 4. On-Resistance vs. Drain Current and Gate Voltage

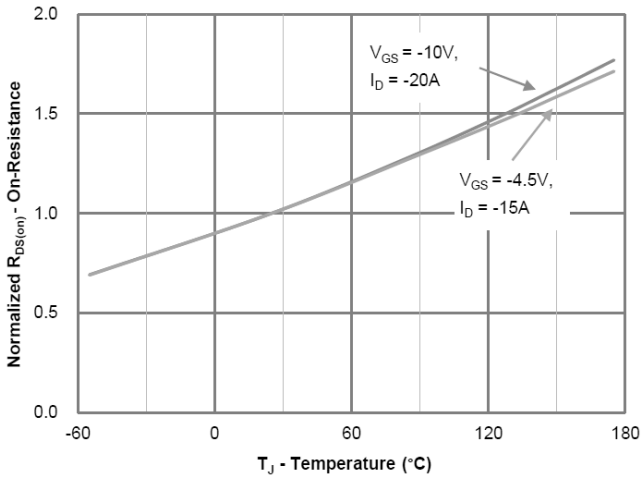


Figure 5. On-Resistance vs. Junction Temperature

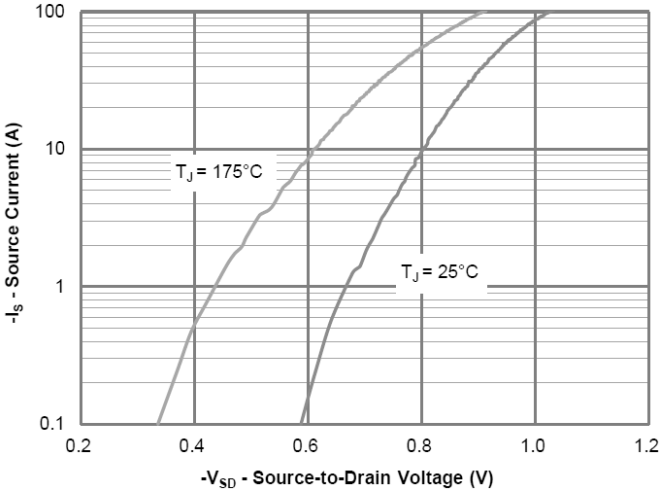


Figure 6. Source-Drain Diode Forward Voltage

Typical Performance Characteristics

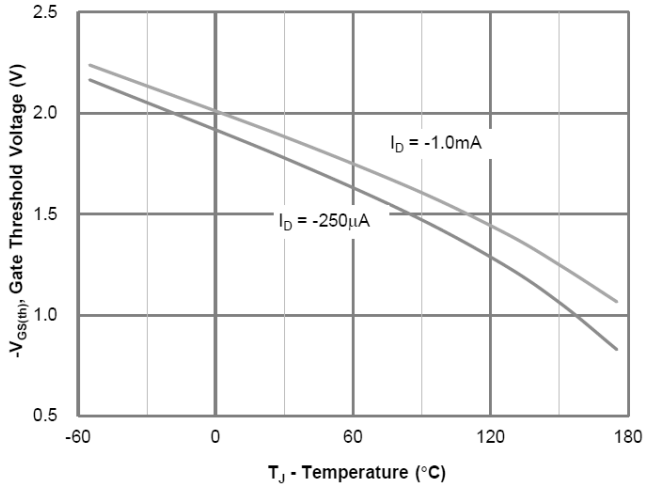


Figure 7. Gate Threshold Variation vs. Junction Temperature

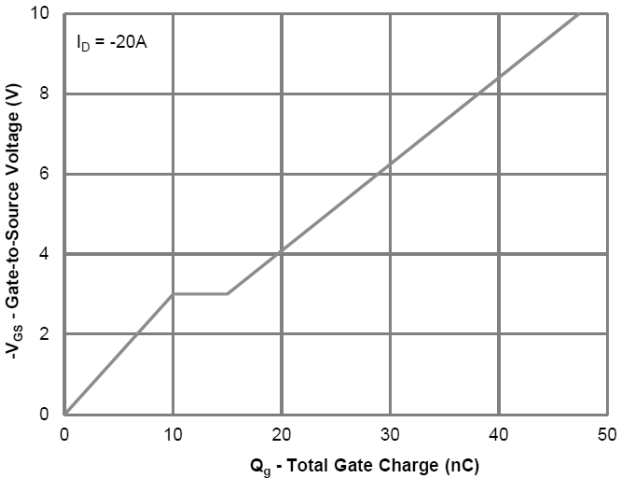


Figure 8. Gate Charge Characteristics

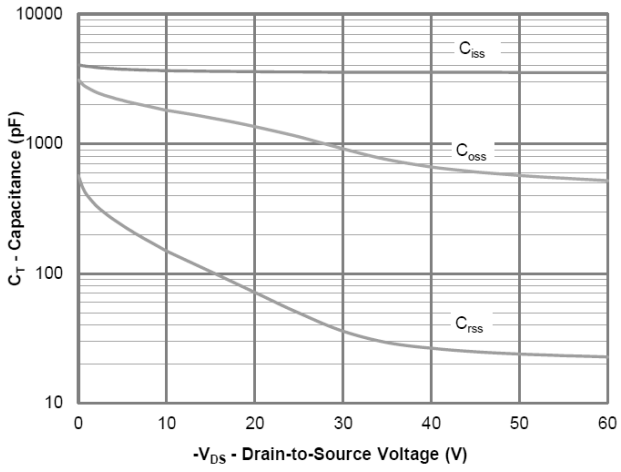


Figure 9. Capacitance Characteristics

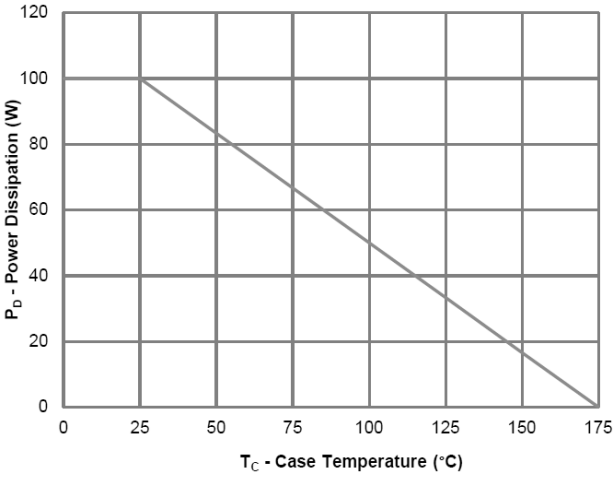


Figure 10. Power Derating

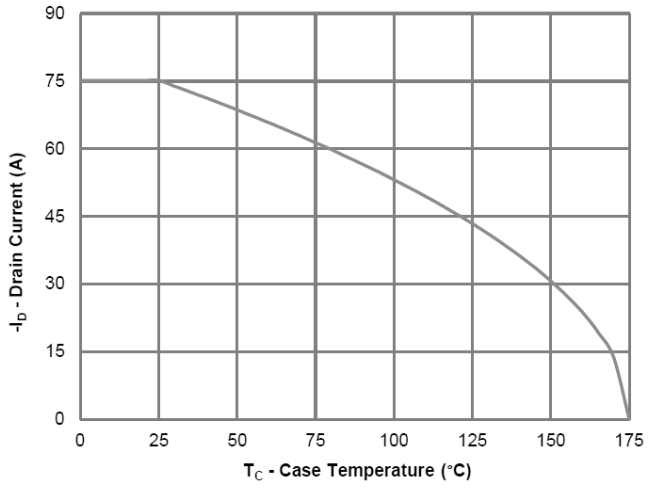


Figure 11. Current Derating

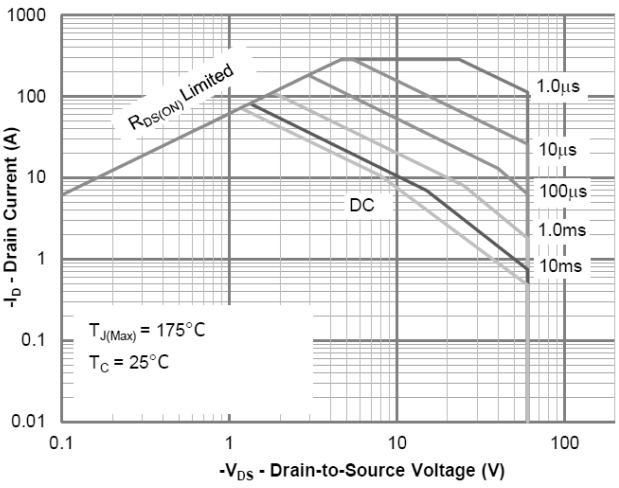


Figure 12: Safe Operating Area

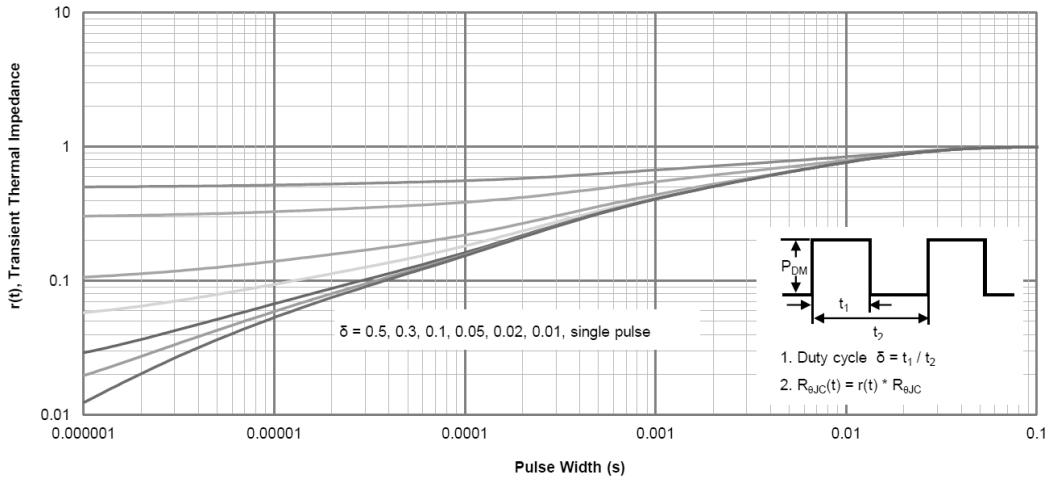
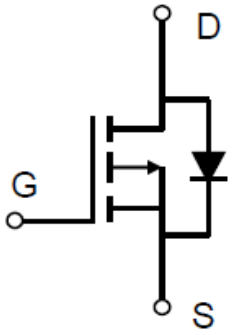
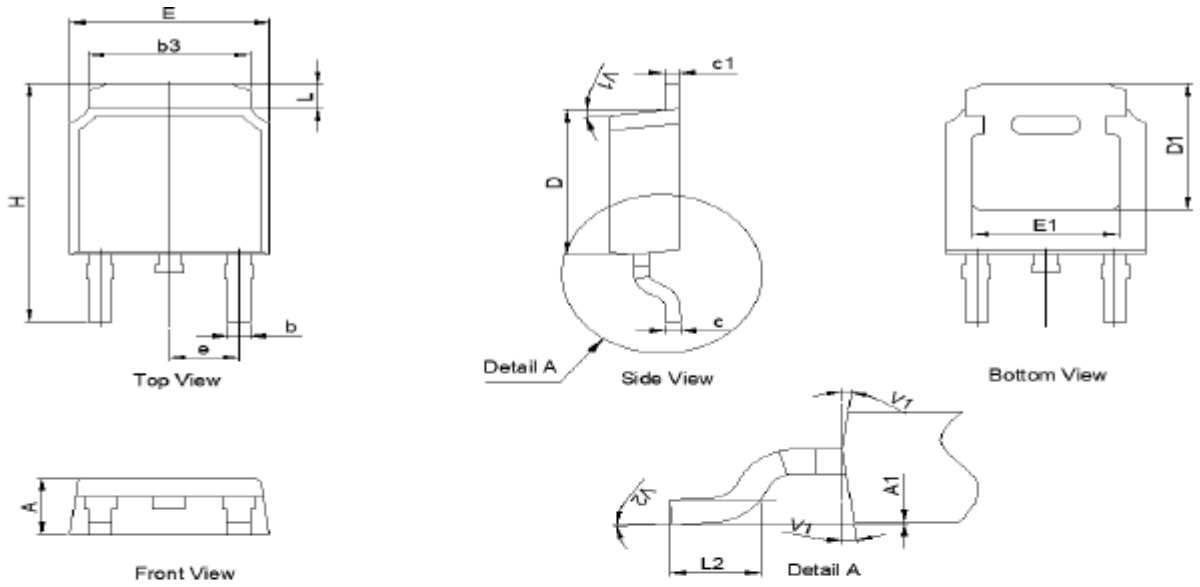


Figure 13: Normalized Maximum Transient Thermal Impedance

·Circuit diagram



·Package outlines : Dimensions in (mm)



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMNESIONS IN MILLIMETER (ANNGLE IN DEGREE).
3. DIMENSIONS "D" AND "E1" DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.20	2.30	2.40
A1	0	-	0.13
b	0.62	0.76	0.90
c	0.40	0.50	0.61
c1	0.46	0.50	0.58
D	5.90	6.10	6.30
D1	5.05	--	--
E	6.35	6.60	6.80
E1	4.32	--	--
b3	5.21	5.38	5.55
e	2.29 BSC		
H	9.40	10.00	10.40
L	0.89	--	1.27
L2	1.40		1.78
V1	7° REF		
V2	0°	-	6°

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