

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	23mΩ@-4.5V	-7A
	30mΩ@-2.5V	

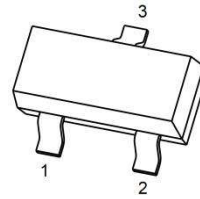
Features

- Very Low On-resistance $R_{DS(ON)}$
- Low C_{rss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

Applications

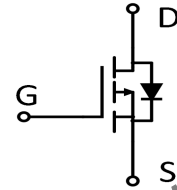
- Battery protection
- Load switch
- Power management

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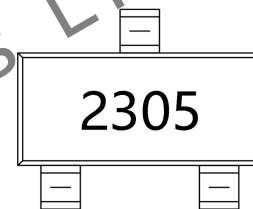


PIN1:GATE
PIN2:SOURCE
PIN3:DRAIN

Schematic diagram



Marking



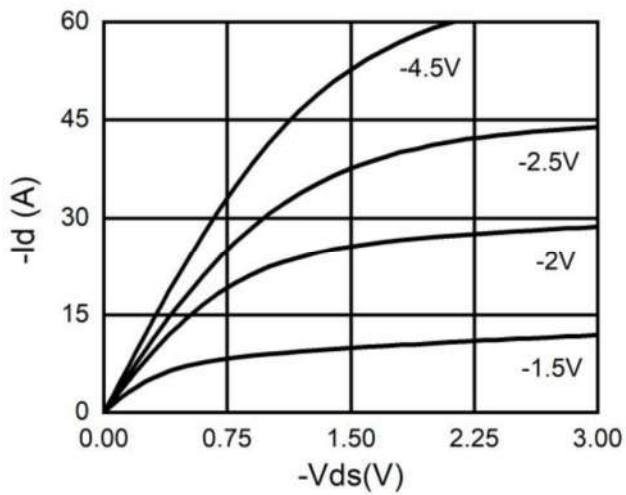
Absolute Maximum rating ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Drain Current	$T_C = 25^\circ\text{C}$	I_D	-7	A
	$T_C = 100^\circ\text{C}$		-5	A
Drain Current - Pulsed		I_{DM}	-28	A
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	1.2	W
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	105	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

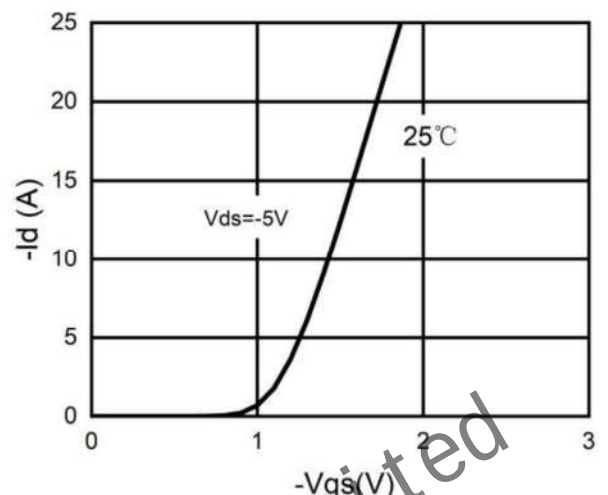
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain - Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.5	-0.7	-1	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3A		23	30	mΩ
		V _{GS} = -2.5V, I _D = -2A		30	40	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} =0V, F= 1.0MHz		1400		pF
Output Capacitance	C _{oss}			170		
Reverse Transfer Capacitance	C _{rss}			140		
Switching Characteristics						
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-5A		14.2		nC
Gate-source Charge	Q _{gs}			1.1		
Gate-drain Charge	Q _{gd}			4.8		
Turn-on Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, R _L =1.5Ω, R _{GEN} =6Ω		13		ns
Turn-on Rise Time	t _r			32		
Turn-off Delay Time	t _{d(off)}			27		
Turn-off Fall Time	t _f			9		
Source - Drain Diode Characteristics						
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _{SD} = -1A, T _J = 25℃			-1.2	V

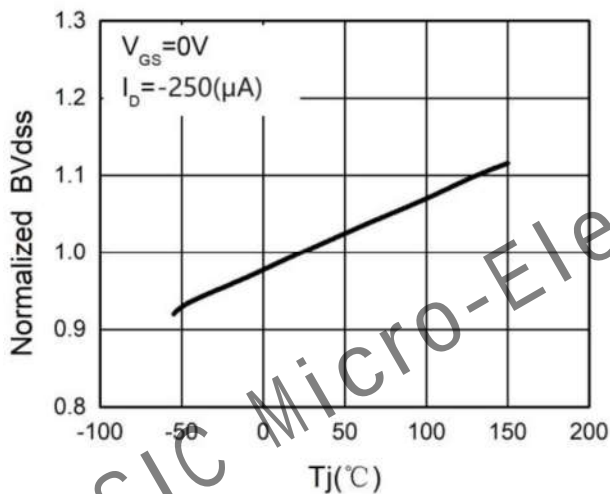
Typical Characteristic



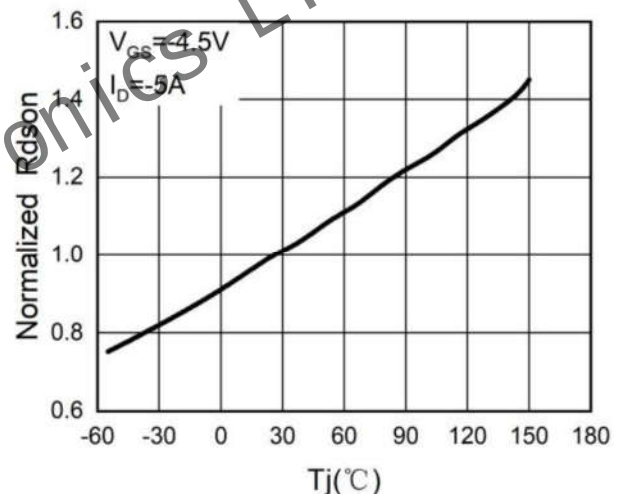
Output Characteristics



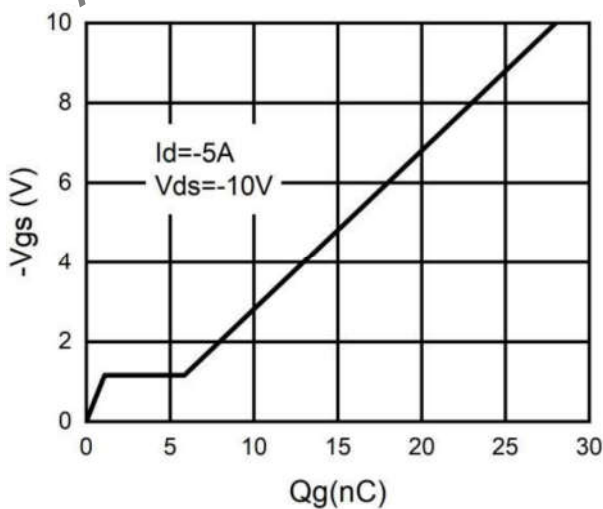
Transfer Characteristics



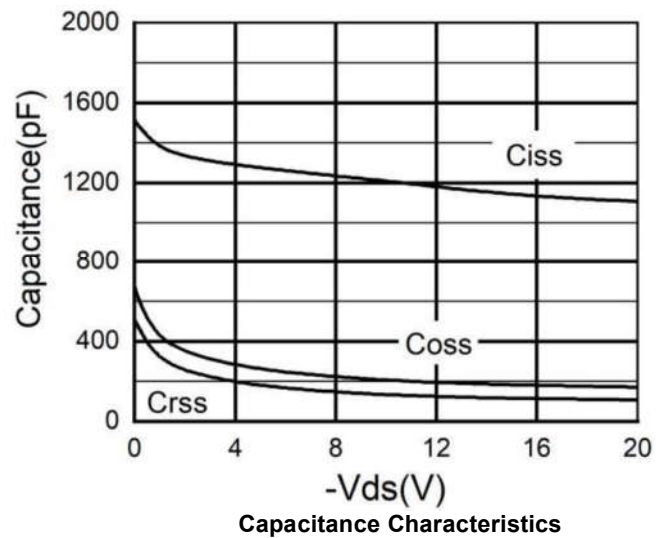
BV_{dss} vs Junction Temperature



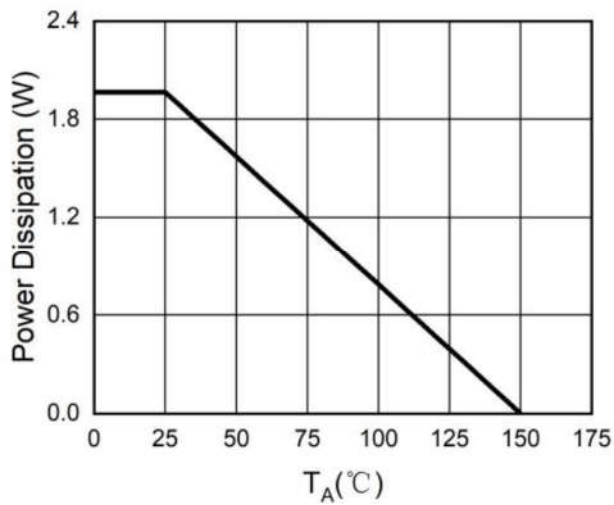
$R_{ds(on)}$ vs Junction Temperature



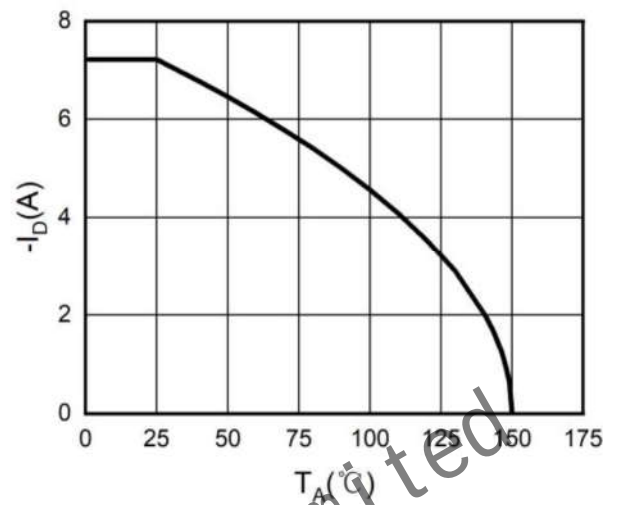
Gate Charge Characteristics



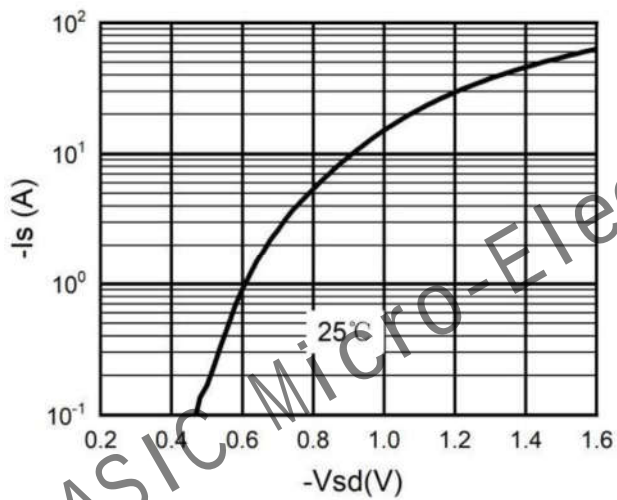
Capacitance Characteristics



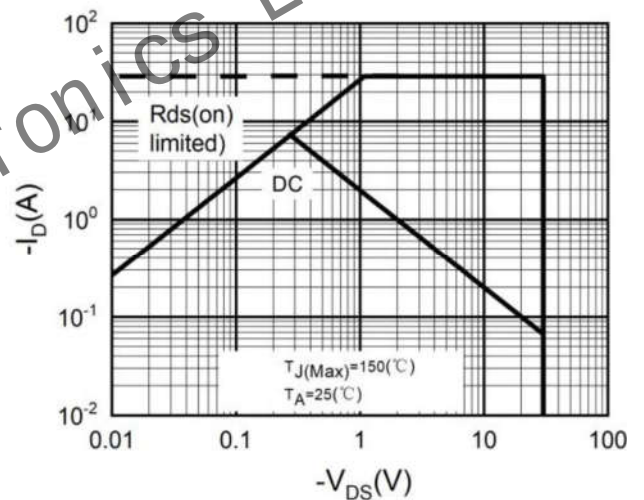
Power Dissipation



Drain Current



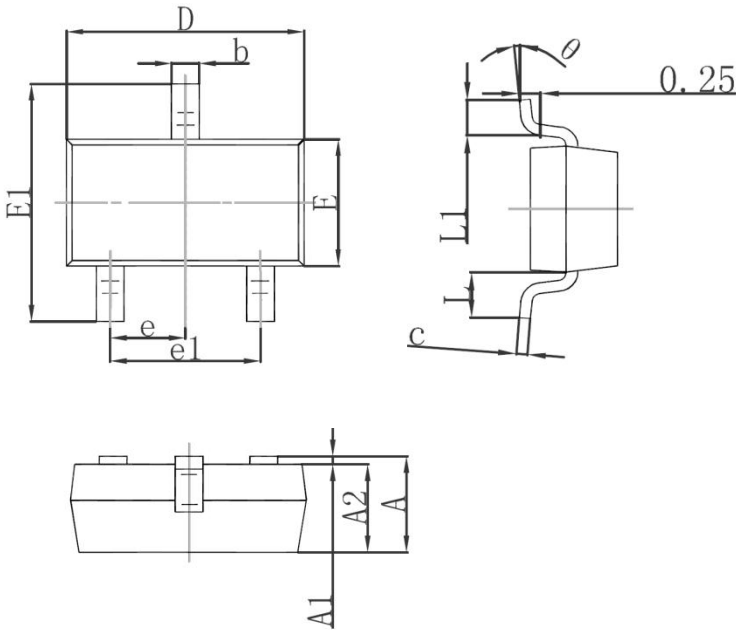
Body-Diode Characteristics



Maximum Safe Operating Area

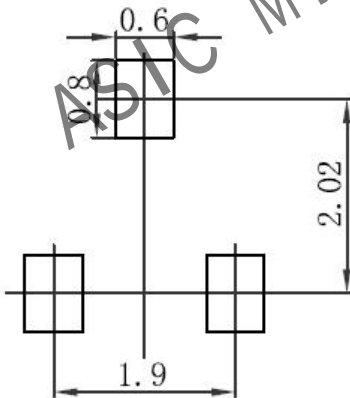
Dimension

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Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only
4. Unit: mm