



02P35Z

POWER MOSFET

200mA, 350V P-CHANNEL POWER MOSFET

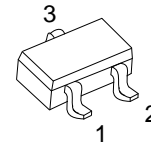
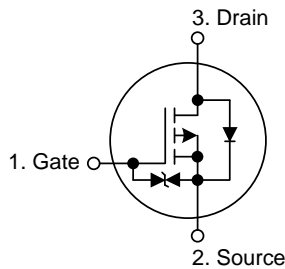
DESCRIPTION

The UTC **02P35Z** is a silicon P-channel MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance, high switching speed and low gate charge.

FEATURES

- * $R_{DS(ON)} \leq 15\Omega$ @ $V_{GS}=-10V, I_D=-0.1A$
- * $R_{DS(ON)} \leq 16.5\Omega$ @ $V_{GS}=-4.5V, I_D=-0.1A$
- * High switching speed
- * Low input capacitance

SYMBOL



SOT-23
(EIAJ SC-59)

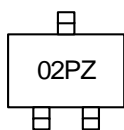
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
02P35ZL-AE3-R	02P35ZG-AE3-R	SOT-23	G	S	D	Tape Reel

Note: Pin Assignment: G: Gate S: Source D: Drain

02P35ZG-AE3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE3: SOT-23
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



■ ABSOLUTE MAXIMUM RATING (T_C=25°C unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	-350	V
Gate-Source Voltage		V _{GSS}	±20	V
Drain Current	DC	I _D	-0.2	A
	Pulsed (Note 2)	I _{DM}	-0.4	A
Power Dissipation		P _D	0.3	W
Junction Temperature		T _J	+150	°C
Storage Temperature Range		T _{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating : Pulse width limited by maximum junction temperature.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	350	°C/W

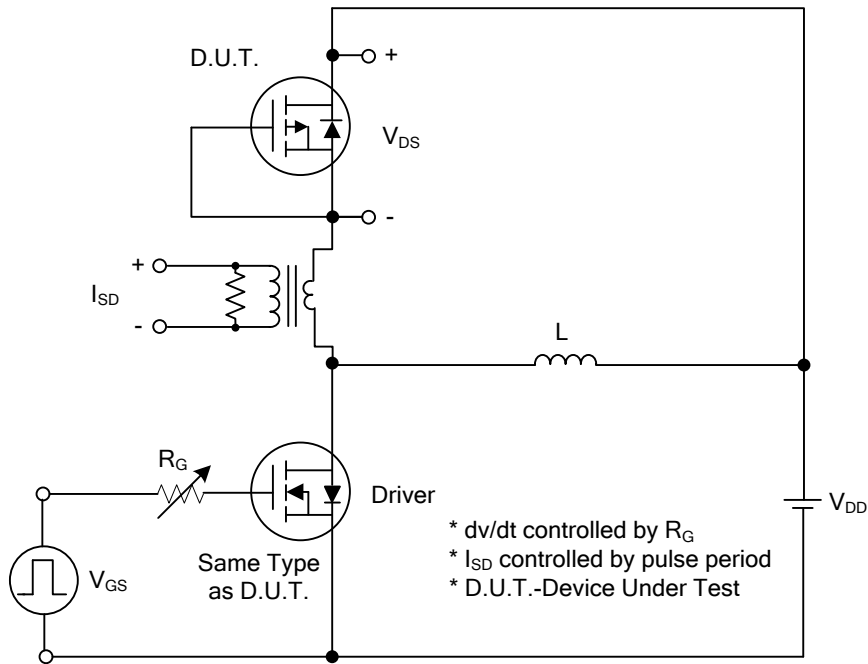
■ ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	V _{GS} =0V, I _D =-250μA	-350			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =-350V, V _{GS} =0V			-10	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V, V _{DS} =0V			+10	μA
	Reverse		V _{GS} =-20V, V _{DS} =0V			-10	μA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} = V _{GS} , I _D =-250μA	-1.0		-2.5	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =-10V, I _D =-0.1A			15	Ω
			V _{GS} =-4.5V, I _D =-0.1A			16.5	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =-25V, f=1.0MHz		77		pF
Output Capacitance		C _{OSS}			17.7		pF
Reverse Transfer Capacitance		C _{RSS}			4		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{DS} =-280V, V _{GS} =-10V, I _D =-200mA, I _G =-1mA (Note 1, 2)		8.4		nC
Gate to Source Charge		Q _{GS}			1.92		nC
Gate to Drain Charge		Q _{GD}			0.9		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =-100V, V _{GS} =-10V, I _D =-200mA, R _G =25Ω (Note 1, 2)		3.2		ns
Rise Time		t _R			17.3		ns
Turn-OFF Delay Time		t _{D(OFF)}			22.4		ns
Fall-Time		t _F			43.9		ns
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Continuous Drain-Source Diode Forward Current		I _S				-1	A
Maximum Pulsed Drain-Source Diode Forward Current		I _{SM}				-2	A
Diode Forward Voltage		V _{SD}	I _F =-0.2A, V _{GS} =0V			-1.4	V

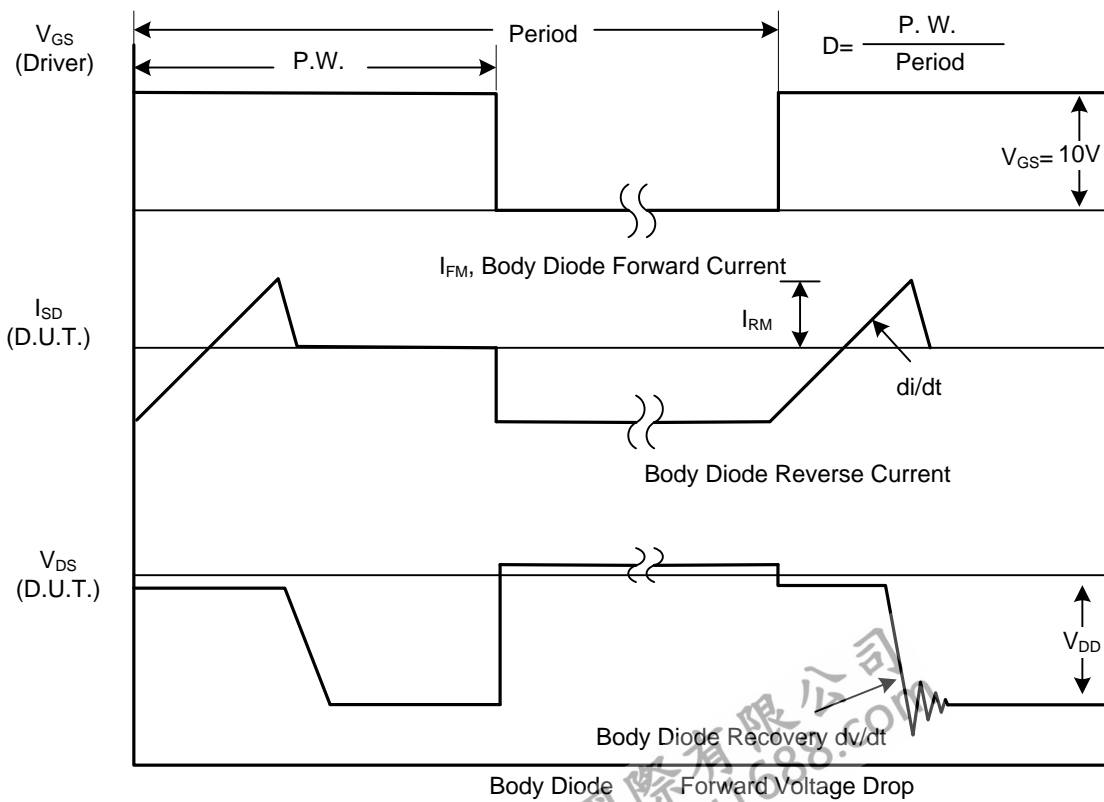
Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

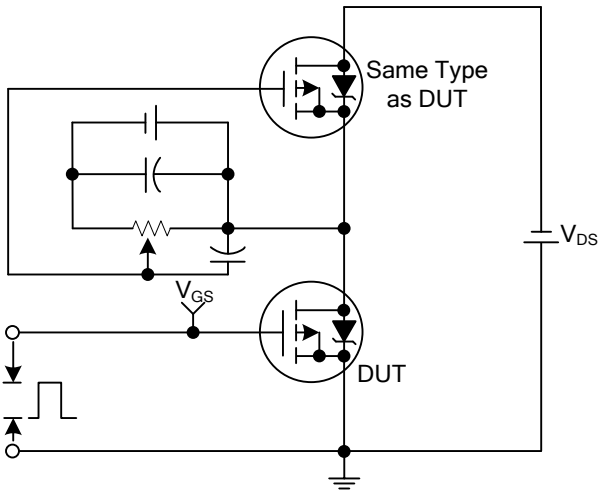


Peak Diode Recovery dv/dt Test Circuit

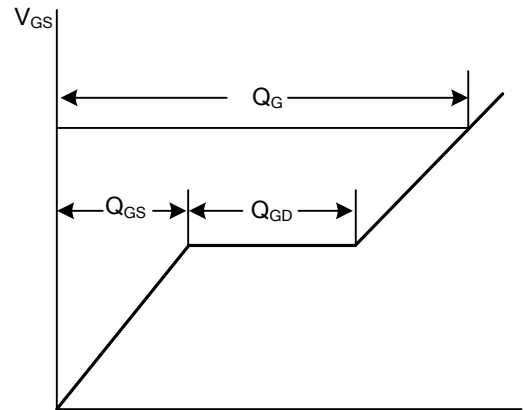


Peak Diode Recovery dv/dt Waveforms

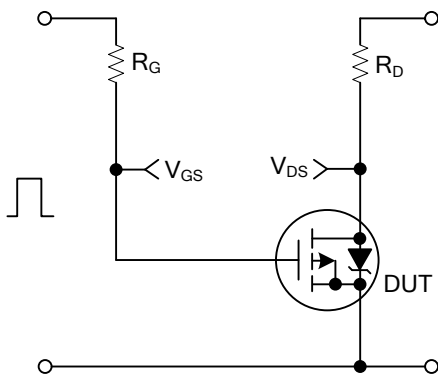
■ TEST CIRCUITS AND WAVEFORMS



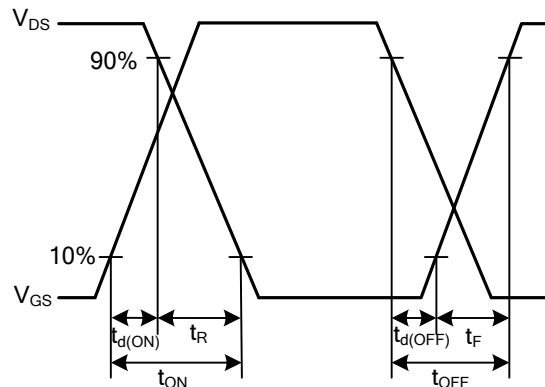
Gate Charge Test Circuit



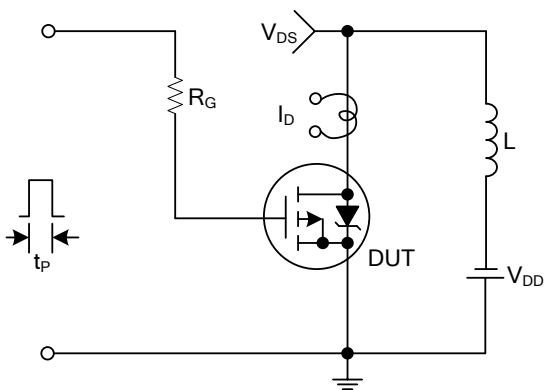
Gate Charge Waveforms



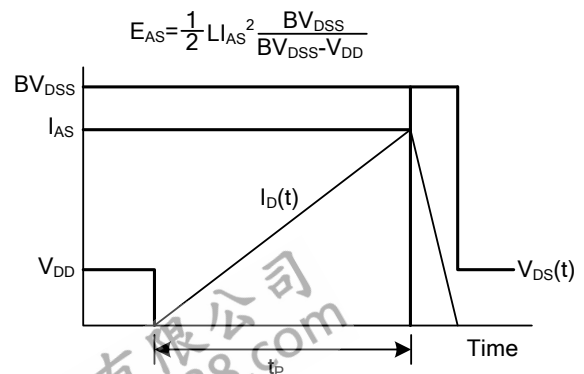
Resistive Switching Test Circuit



Resistive Switching Waveforms

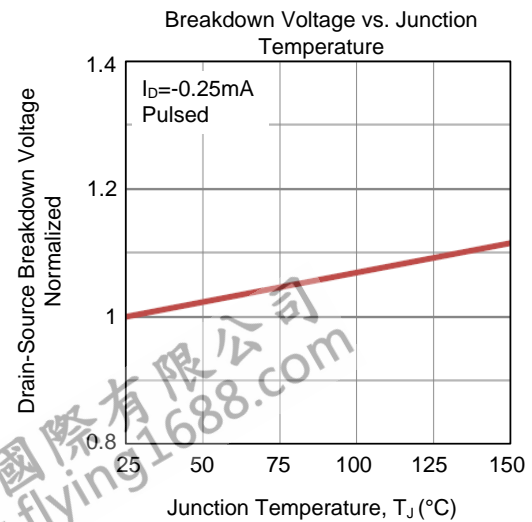
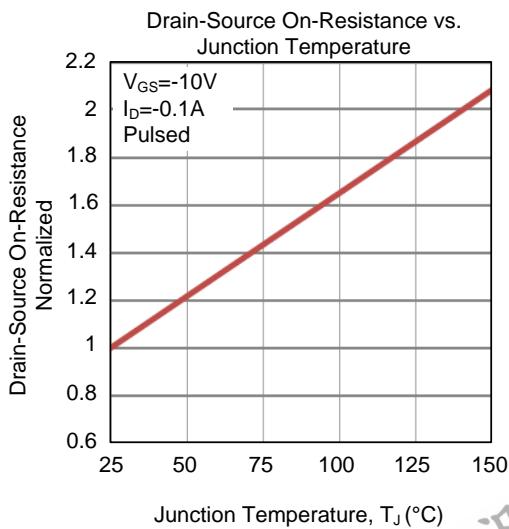
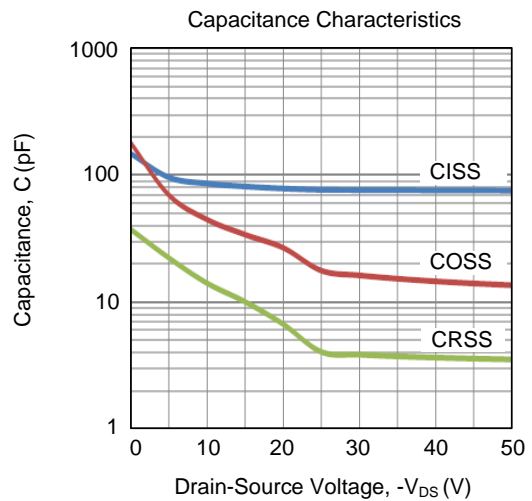
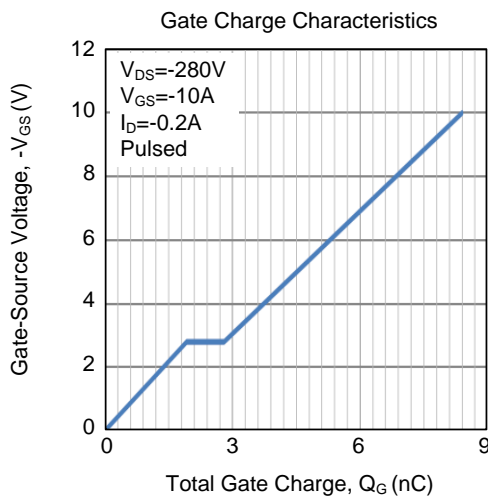
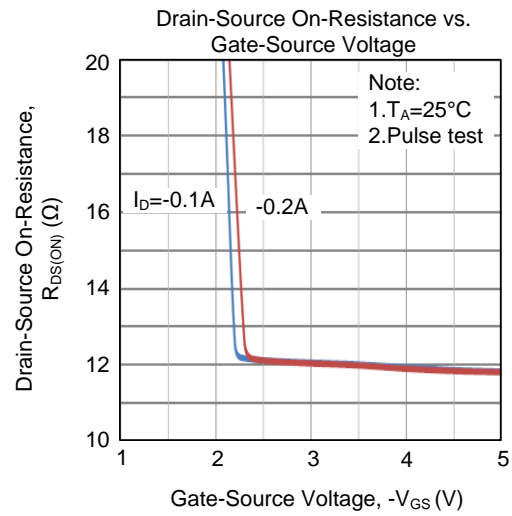
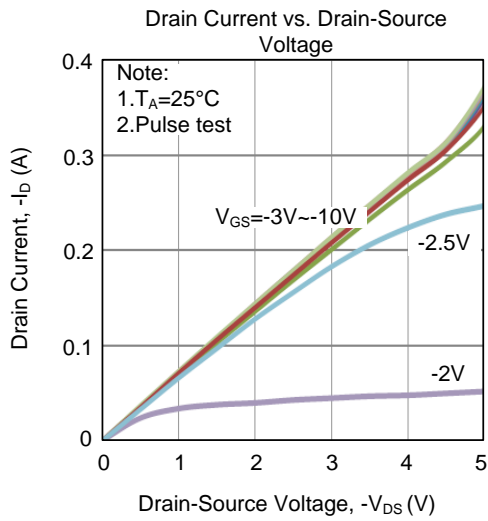


Unclamped Inductive Switching Test Circuit

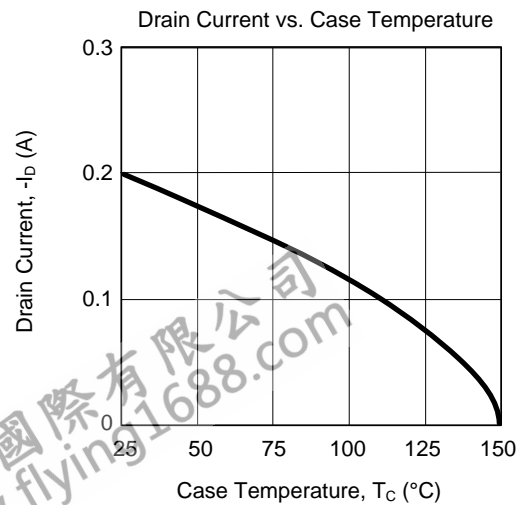
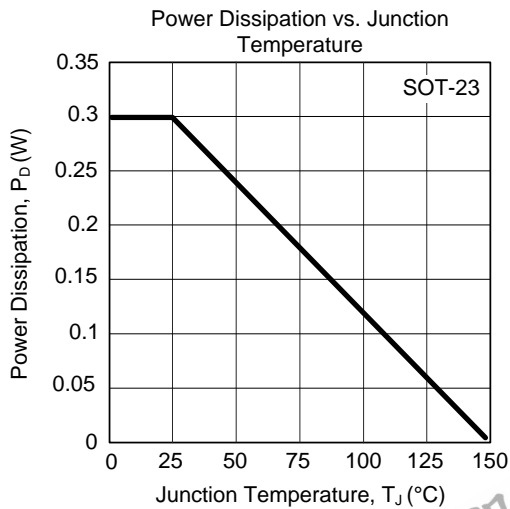
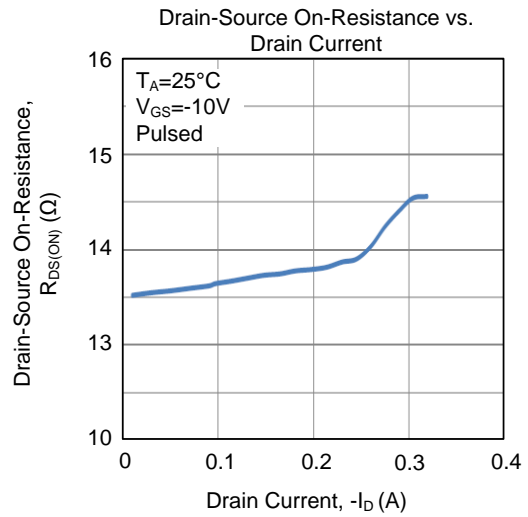
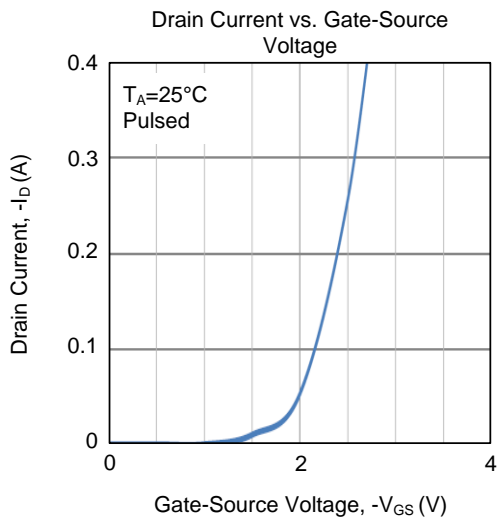
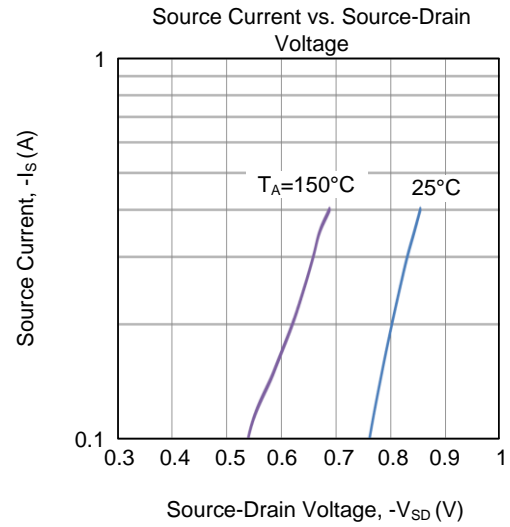
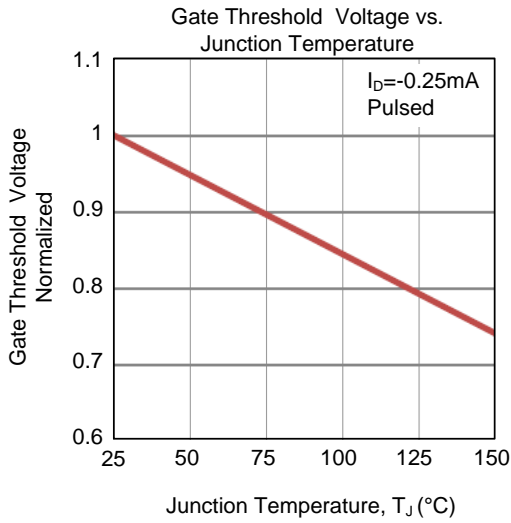


Unclamped Inductive Switching Waveforms

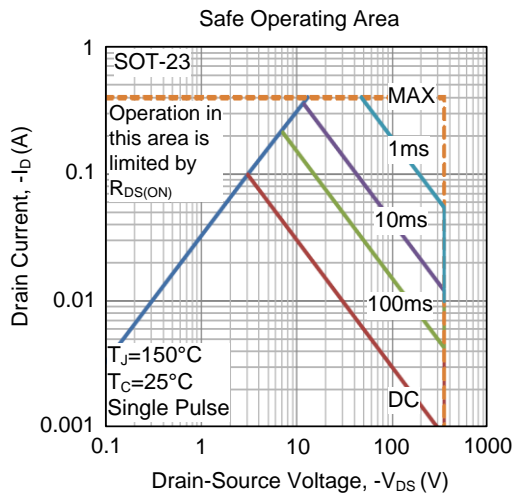
■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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